DOCUMENT RESUME

ED 152 062 EC 110 198

TITLE	Museums and Handicapped Students: Guidelines for Educators.
INSTITUTION	Smithsonian Inst., Washington, D.C. National Air and Space Museum.
SPONS AGENCY	Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.
PUB DATE	Dec 77
NOTE	172p.
AVAILABLE FROM	Harold W. Snider, Coordinator, Programs for the Handicapped, Room 3566, National Air and Space Museum, Smithsonian Institution, Washington, D.C. 20560 (Free)
EDRS PRICE	MF-$0.83 HC-$8.69 Plus Postage.
DESCRIPTORS	Aurally Handicapped; Educational Facilities; Emotionally Disturbed; Exceptional Child Research; Guidelines; *Handicapped; *Handicapped Children; Learning Disabilities; Mentally Handicapped; *Museums; Physically Handicapped; *Program Design; Program Development; Surveys; Visually Handicapped

ABSTRACT

Presented are guidelines drawn from surveys of programs and services provided for handicapped persons in U.S. museums. An initial section which reviews literature on museum programs for handicapped visitors focuses on problems and misconceptions regarding blind, deaf, physically handicapped, learning disabled and emotionally disturbed, and mentally retarded persons. Relevant federal legislation is reviewed. Discussed are findings of three surveys: a survey of 637 museums on such topics as average number of handicapped visits by type of museum, program responsibility, staff training, and methods used to inform the handicapped of program availability; a survey of special education teachers regarding special museum services, teacher opinions of museum roles and teacher suggestions concerning museum experiences; and a survey of blind, deaf, and physically handicapped consumers. Guidelines covering such aspects as staff training, museum accessibility, publicity, and programs for the handicapped are presented in separate chapters regarding physically handicapped, deaf, blind, learning disabled and emotionally disturbed, and mentally retarded students. (CL)

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Museums and Handicapped Students
Guidelines for Educators

A Publication of the Smithsonian Institution
Funded by a Grant from
The Bureau of Education for the Handicapped
U.S. Department of Health, Education and Welfare

Washington, D.C.
December 1977

EC110198

Copies of this publication are distributed free of charge by the Smithsonian Institution. Your comments are welcome. All correspondence should be sent to:

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Foreword

The time it takes to reach a goal depends on the speed with which it is approached. It depends also on the care and skills employed to negotiate the journey, and the ability to enlist sympathetic support from those who launch us and those we meet along the way. One of the important goals of the National Air and Space Museum is to lower museum barriers for handicapped visitors as a small step toward enabling them to enter the mainstream of American society. By providing guidelines for museums to serve handicapped students, this publication is part of a national effort to close a formidable gap which we have unwittingly placed between ourselves and those people whose perceptions or mobilities are impaired.

As this publication makes clear, the greatest feelings of deprivation often result not from the handicap itself, but from frustration over the obstacles that preclude sharing the experiences and involvements of the fortunate majority. It is demoralizing and creates an unnecessary feeling of exclusion and isolation.

This publication also makes clear that there is much work to be done by educators and museum personnel. We have just scratched the surface, especially in the area of exhibits. Most museums have neither the funds nor the expertise to meet the diverse requirements of visitors who are blind, deaf, or physically or mentally handicapped. While this publication may not help alleviate the money problem, it should clarify the fundamentals of making an exhibit better from the viewpoint of handicapped visitors. Frequently, ideas developed for handicapped people enhance the exhibit for all other visitors as well. For example, the National Air and Space Museum displays a moon rock which may be touched, a feature that appeals to the sighted as much as to the blind.

Museum educators should continue to experiment with programs for handicapped students. As they do so, they will discover more effective techniques for integrating exhibits into the perceptions of handicapped visitors. And, as educators strive to meet the needs of *all* students, they are learning, making discoveries, and expanding their own awareness. Their imagination is stretched, their own perceptions sharpened. So it can be for all of us, not only in museums, but in all aspects of life. If we become more responsive to the special problems of some people, it follows that our own community planning endeavors will make life more meaningful for everyone.

To paraphrase: "We have met the handicapped and he is us." When we begin to acknowledge this truth—that it is only a matter of degree—we will surely improve the quality of life for all of us.

Michael Collins, *Director*
National Air and Space Museum

Preface

Over the past decade, the Smithsonian Institution has recognized the need to develop museum programs for handicapped persons. In September 1975, the Smithsonian's Committee on the Handicapped was formed. The idea for the present study was developed by committee members during group discussions.

The Smithsonian Institution was awarded a grant of $74,716 (Grant #60076–01902) by the Bureau of Education for the Handicapped, Department of Health, Education and Welfare, on June 1, 1976. Duration of the grant was eighteen months. Its purpose was twofold:

1. To conduct an in-depth survey of the programs and services provided for handicapped students in museums in the United States, and
2. To develop guidelines which museum educators can use in establishing programs and services for handicapped students.

To accomplish these tasks involved three major undertakings. First, a bibliographic search of literature applicable to programs for handicapped students in museums was conducted. Second, three different surveys were constructed which were directed to randomly selected members of three groups having personal knowledge of current museum programs for handicapped students. These three groups were museum educators, special education teachers, and consumers—deaf, physically handicapped, and blind persons. Third, consultants and consumers assisted in the development of guidelines for museum programs.

This publication summarizes survey findings and presents guidelines for program implementation.

Acknowledgments

Many persons have made invaluable contributions to the success of this project. Special thanks go to Dr. R. Lynn Bondurant, Jr., formerly Education Officer at the National Air and Space Museum (NASM). Dr. Bondurant ably coordinated and administered this project through the major portion of its development.

Mr. Michael Collins, Director, National Air and Space Museum (NASM); Dr. Brooke Hindle, Director, National Museum of History and Technology; Dr. Porter M. Kier, Director, National Museum of Natural History; Abram Lerner, Director, Hirshhorn Museum and Sculpture Garden; Melvin B. Zisfein, Deputy Director, NASM; Mr. John Whitelaw, Executive Office, NASM; Ms. M. A. Smith, Administrative Officer, NASM; and Von Del Chamberlain, Chief, Presentations and Education Division, NASM; all provided administrative support and advice essential to the completion of this project.

Dr. Amy Gerson provided special assistance as the grant's research associate. Nancy Painter acted as administrative aide and performed secretarial support duties throughout the project.

The people listed below provided expertise and assistance in the following areas:

Survey Preparation and Assistance

Countless hours of service were provided by the NASM volunteers.

Additional assistance in survey preparation was provided by:
Larry Malloy, Director, Arts and the Handicapped Information Service,

Educational Facilities Laboratory, New York
Emanuel Blomberg, South Capitol Press, Washington, D.C.
William Raeder, National Braille Press, Boston, Massachusetts

Additional assistance in preparation and administration was provided by:

Judy Blinn
Peggy Dong
Diane Doremo
William Lindsey
George McDermott
Lois Roberts
Catherine Smith
Cindy Stern

Surveys

Museum Surveys

Museum surveys were completed by members of the American Association of Museums.

Special Education Surveys

Assistance in the preparation of special education surveys was provided by:

National Association of State Directors of Special Education and its Executive Director, Dr. Richard Gallaway

Dr. Rita Ives, Coordinator, Early Childhood Department, Special Education Department, The George Washington University, Washington, D.C.

Consumer Surveys

Consumer surveys were completed by members of the:

National Association of the Deaf
National Federation of the Blind
National Paraplegia Foundation

Additional information was provided by the following consumers:

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Dr. Mary Fury, retired faculty member, Gallaudet College, Washington, D.C.

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Dr. Fred Schreiber, President, National Association of the Deaf, Silver Spring, Maryland

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James Gashel, Chief, Washington Office, National Federation of the Blind, Washington, D.C.

Dr. Kenneth Jernigan, Director, Iowa Commission for the Blind, Des Moines, Iowa; Immediate Past President, National Federation of the Blind

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Dr. Leonard Wendland, Director of Health Related Professions, University of Southern California

Learning Disabled and Emotionally Disturbed

Dr. Kathleen McArdle, Burke, Virginia
Dr. Grace J. Warfield, Department of PsychoEducational Studies, University of Minnesota
Miles Wusterbart, Rose School, Washington, D.C.

Mentally Retarded

Sue Fine, Northern Virginia Training Center for the Mentally Retarded, Annandale, Virginia
Charles Steiner, Metropolitan Museum of Art, New York
Marla Williams, Department of Special Education, University of Virginia, Charlottesville, Virginia

Thanks go to those persons who assisted with the preparation and review of the manuscript for this publication:

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Department of Museum Studies, Leicester University, Leicester, England
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Marylou Feenstra, Palm Springs Museum, Palm Springs, California
Patria Forsythe, Subcommittee on the Handicapped, U.S. Senate, Washington, D.C.
Lisa Hutchinson, MUSEDUC, California Museum of Science and Industry, Los Angeles, California
Claire Isaacs, Director, Junior Arts Center, Los Angeles, California
Richard Lipscomb, Natural History Museum of Los Angeles, California
Dennis Schatz, Pacific Science Center, Seattle, Washington
Jeanne Valchos, Special Education Department, Board of Education, Los Angeles, California
Doris Whitmore, Director, Jacksonville Children's Museum, Jacksonville, Florida

Preparation Assistance

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Diane Palmer, National Air and Space Museum
David Short, Contracts Officer, Smithsonian Institution
Catherine Scott, Library Staff, National Air and Space Museum

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This project was completed under the direction of the Smithsonian Institution Committee on the Handicapped:

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Edward P. Lawson, Hirshhorn Museum and Sculpture Garden
Joan C. Madden, National Museum of Natural History
Alice Reno Malone, National Museum of History and Technology
Harold Snider, National Air and Space Museum

Harold Snider
Project Director
December 1977

I: Background

Literature on Museum Programs for Handicapped Visitors

Although museums have existed in one form or another for several centuries, museum programs for handicapped students are a new concept. Museum education itself is a very modern discipline. Programs to meet the needs of handicapped students require an across-the-board approach within the museum structure. For instance, physically handicapped students cannot enter a museum to participate in an educational program unless the building is architecturally accessible. Blind students cannot appreciate the exhibits unless they can be touched or explained verbally. Thus, educators, architects, and exhibit designers, along with the museum's administration, must all address programs for handicapped students.

Literature about museum programs for handicapped students is scarce, mainly because relatively few museums have programs to meet the needs of handicapped students and even fewer people are interested in writing about such programs.

In preparing this chapter, five computer searches were made, and three hundred entries were examined for relevance to the subject. This chapter is not a complete review of the literature about museum programs for handicapped students, but rather a summary of some of the relevant literature. The scarcity of applicable literature will give the reader some idea of how little is known about museum programs for handicapped students.

The most outstanding recent compendium of literature about museum programs for handicapped students has appeared in a series of pamphlets produced by the National Arts and the Handicapped Information Service (Educational Facilities Laboratory, 850 Third Avenue, New York, New York), which is funded by a grant from the National Endowment on the Arts. These pamphlets include:

- "Arts and the Handicapped: An Issue of Access"
- "Arts for the Blind and Visually Impaired"
- "Museum Planning for the Handicapped: New Programs and Facilities"
- "Schoolhouse: Arts for Handicapped Students"
- "Funding Sources"
- "Technical Assistance, Information Centers, and Consultants"
- "Conferences, Seminars, Workshops, and Special Exhibitions"
- "Architectural Accessibility"
- "We Are Pleased That You Are Interested in Making the Arts Accessible to Everyone"
- "Accessible Arts Catalogue"

Museums and Handicapped Participants

Museums must examine the needs, strengths, and interests of their visitors in order to plan museum programs which invite participation. "The reminder of everyone's heritage is housed in the museum, yet for some disabled persons, it is difficult or impossible to study or enjoy its treasures."[1]

A review of the literature determined that

> The traditional methods of interpretation have placed most of the emphasis on presentation. Of late, there has been a questioning of the success of traditional interpretation—is it producing the desired effect? To be effective, interpretation should be designed so as to be appealing to each visitor, and to communicate in a manner that is understandable by each visitor. This change in approach is based on the premise that involvement is more conducive to understanding. In addition, interpretation that relies on involvement of the visitor can be tailored to suit the visitor.
>
> Most of today's interpretation assumes a relatively homogeneous audience with similarities in age, area of origin, native language, educational background, cultural background, beliefs, interests, mental capacities, physical capacities, and recreational goals.[2]

There is little available literature that relates the needs of the handicapped to museum education programs.

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[1] Norma Heakes, "Serving the Handicapped," *Toronto Royal Ontario Museum Journal,* Vol. 1, Spring 1966 pp. 88–92.

[2] Jacques Beechel, "Interpretation for Handicapped Persons," p. 35.

Museums and the Blind

Most current research and statements of consumer needs in regard to museums deal only with the blind and severely visually impaired. In 1968, George Moore, writing in the magazine *Curator*, stated that blind individuals were uniformly neglected by museums even though "a basic function of a museum is to make the collections and the information pertaining to them available to all strata of the community by every practical means."[3]

More recently, Yasha Lisenco wrote about increasing museum response to the visually handicapped:

> More and more, throughout the country, museums are recognizing the value of setting up "touch exhibitions" for blind and severely visually impaired people. In some instances, these tactile exhibits are one-time affairs; however, in an equal number of instances, a gallery specifically designed for the use of blind people has become an integral part of the museum.[4]

Mary Switzer has described the supportive efforts of the United States Department of Health, Education and Welfare in helping museums institute and develop galleries and programs for blind people. Her report indicates the great variety of approaches being taken by institutions to provide more satisfying use of facilities by blind adults and children.[5]

What role can museums play in serving the blind? Harry Henriksen states:

> In recent years we have realized that the museum can play an important role in education for the blind. Museum staffs and educators have recognized that potentially limited experience imposed by blindness can be countered by tactile exploration in museums.[6]

A number of art museums have established tactile exhibits for the blind. One such pioneer, the North Carolina Museum of Art, has established a permanent gallery for the blind through funds provided by the United States Vocational Rehabilitation Administration.

In this museum and others,

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[3] George Moore, "Displays for the Sightless," p. 292.

[4] Yasha Lisenco, *Art Not By Eye*, p. 98.

[5] Mary Switzer, "The Enjoyment of the Arts: Another Aspect of Rehabilitiation," pp. 21–33.

[6] Harry C. Henriksen, "Your Museum: A Resource for the Blind," p. 26.

> Specially constructed galleries for the sightless are equipped with selected art objects suitable for handling and augmented by braille labels and legends, audio systems, or both. Some museums have established small classes in which the blind can examine and discuss art objects with qualified instructors.[7]

Unfortunately, to now,

> The major responsibility for museum education of the blind has fallen to the large, urban-centered museums for not only is there a sizeable and eager population of sightless people to participate, but these museums are usually endowed with large staffs and budgets that allow for flexibility and innovation in their projects.[8]

Based on this piece of information, one may legitimately question whether or not the museums located in rural and small suburban communities should exclude the possibility of their being able to serve the blind, or otherwise handicapped. Does serving the blind require special galleries?

The early part of the 20th century saw a

> . . . major effort to bring blind people into society's mainstream. Blind children in increasing numbers have moved from special residential school systems and on to colleges and universities. Blind adults have left sheltered workshops for offices, factories and professional jobs.[9]

Programs already in existence in some museums make it clear that blind persons can and should be integrated into ordinary museum programs that serve the general public. For example:

> The National Air and Space Museum has developed extensive programs for the handicapped that are designed to integrate the handicapped visitor into the museum environment rather than exclude him in segregated facilities. Segregated facilities are not only costly but give the handicapped visitor a view of the museum's collections that is unequal to that of the visitor without a handicap. Our programs utilize techniques that allow handicapped people the opportunity to appreciate as much of what is exhibited in the museum as possible. These are not special techniques; they are alternatives. With them, we serve a national audience—the handicapped people . . . .[10]

Special touch museums and fragrance gardens for the blind negate this mainstream philosophy, and

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[7] Ibid., p. 27.

[8] Ibid.

[9] Patricia Scherf Smith, "Against Segregating the Blind," p. 10.

[10] Harold Snider, "The Inviting Air of an Accessible Space," p. 19.

Lisenco also addresses the topic of separate facilities for the blind: "Any touch gallery should be available to the general public, but some special consideration should be given to blind and severely impaired visitors."[15]

An example of such a gallery is the Mary Duke Biddle Gallery for the Blind of the North Carolina Museum of Art, mentioned earlier. Opened to the public in March 1966, the gallery has been designed so that its exhibits can be fully utilized by blind individuals, but it is also open to the general public. The blind visitor to the Mary Duke Biddle Gallery

> . . . can be completely self-sufficient as soon as he arrives at the door. Instructions in Braille on how to use the gallery are attached to the wall at the entrance. Also on the wall is a relief map of gallery layout with Braille labels indicating exhibition space, library areas and study areas. This serves to give the blind a preview of the gallery space, thus orienting them and giving them a feeling of security.[16]

The Salt Lake City Art Center has also attempted to provide resources, both physical and human, for the blind consumer. Tours are provided by specially trained docents, and the blind are invited to regularly scheduled exhibits along with the rest of the community. Braille versions of invitations to previews and receptions are available, as are braille guidebooks to the museum.[17]

In sum, the literature suggests a variety of approaches for providing facilities for the blind and methods for funding such facilities have been suggested by various individuals and organizations. However, assessments of these programs have not yet indicated that there is a single "best" solution.[18]

The Blind: Attitudes and Misconceptions

Lisenco has observed that

> The actions and attitudes of others play a significant part in a blind individual's strivings to cope with his problems. These others include every person with whom he comes in contact, from members of his family to strangers who may help him only once. His impairment may sometimes elicit helping responses, stifling overprotection, or strange and sometimes negative reactions on the part of people who think of the blind in terms of false stereotypes.[19]

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[15] Lisenco, p. 99.

[16] Charles W. Stanford, Jr., "Report on Soviet ICOM Meeting," p. 8.

[17] James Haseltine, "Please Touch," p. 20

[18] Lisenco, p. 99.

[19] Ibid., p. 14.

The American Foundation for the Blind, a fifty-five year old national consultative organization, has tried to discourage the establishment of specialized facilities and encouraged open access. In 1972, the foundation issued a formal policy statement concerning nature trails, Braille trails, fragrance gardens and touch museums. The statement calls for including necessary special adaptions for blind people within the general park, garden or museum setting and strongly disapproves of any such activity which perpetuates misconceptions and stereotyped thinking and tends to set blind persons apart from the rest of the community.[11]

The National Federation of the Blind, the largest membership organization of blind persons with over 50,000 members, stated in a resolution adopted at its 1976 national convention:

> . . . this organization [will], in the future, actively oppose the granting of Federal funds to those museums which continue to exclude or segregate blind visitors, and actively support and encourage the efforts of those museums which genuinely strive to treat blind persons as normal visitors.[12]

Patricia Smith believes that when access to facilities is limited only to blind people it carries "a psychological impact that is distasteful to the blind or otherwise visually impaired person who has a consciousness of the dignity of self." Smith affirms that "the best way to meet blind people's special needs is to do so within the framework of all people's needs. If there is to be a fragrance garden, call it a 'fragrance garden,' not a 'garden for the blind.' Label the plants in Braille, but also in print. Make a recorded descriptive cassette that guides everyone, not just the blind."[13]

A study conducted by Dove Toll at the Smithsonian supported Smith's statements:

> In conversation with several visually handicapped people, it was discovered that many of them did not want exhibits to be developed for their exclusive use. Among the problems faced by the blind, that of being singled out for special treatment is one of the most difficult to cope with. . . . Therefore, many blind persons are skeptical of and tend to oppose "special services for the blind." What they do want from the museum world, however, is more touch and auditory exhibits for the general public that they can visit as part of the general public.[14]

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[11] Smith, p. 11.

[12] National Federation of the Blind, "Convention Resolution 76–32," p. 495.

[13] Smith, p. 11.

[14] Dove Toll, "Should Museums Serve the Visually Handicapped?" p. 462.

Misconceptions and stereotypes cannot provide a foundation for museum programs for the blind. Museum programs must recognize that the blind can and want to be regarded as part of the mainstream, that "blind people must learn a variety of special techniques for daily living, and they do have some special needs when they visit a museum."[20]

Smith asserts that "Architectural barriers, the focus of considerable recent interest, do not affect blind people. They need no special adaptation of the physical environment provided it is safe for everyone."[21] She goes on to say that some of the more urgent needs of blind people can be met by providing: "a guide, verbal description, and the opportunity to examine certain objects by touch," and concludes that "museums should be able to provide such assistance without major effort."[22]

Museums and the Deaf

Deafness can be an invisible handicap. Because deaf people's personal and physical characteristics do not set them apart, their handicap is often unnoticed, and therefore their needs are frequently unmet. Because the presence of deaf individuals is often unrecognized, society has not been forced to examine the needs of, and provide services for, the deaf. Museums, along with other institutions, have not assessed the needs of the deaf population.

Definition of Population

When discussing the deaf populations, people usually speak of two separate groups—the deaf and the hard of hearing. They define "deaf" as those who lipread or use sign language, while the "hard of hearing" are those who hear sounds but cannot discriminate among them.[23]

Deafness usually results in a language handicap. "The communication process of a deaf person is hampered by difficulties with either reception of the English language, expression of the English language, or both."[24] This language barrier often presents communication difficulties but does not curtail a deaf person's quest for knowledge. Speaking of the deaf child, Leitman writes: "He, too, wants to know about the world, but he has greater need for a more extensive physical exploration of it because of his difficulty in learning directly from written and oral language."[25] Leitman suggests that institutional settings such as museums may unintentionally limit the range of educational experiences for the deaf child. He stresses that "The environment for education must let a child meet and test as much physical and social reality as he can cope with."[26]

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[20] Smith, p. 11.

[21] Ibid.

[22] Ibid.

[23] Meri Fellman, "Programs for Deaf Visitors at the National Air and Space Museum: Research Study," p. 1.

[24] Ibid., p. 2.

The implication for museum educators dealing with deaf children is that "The first hand experiences of children with things have priority over demonstrations, books and words. . . . Lessons for the deaf should be built around material that is readily available and that can be manipulated."[27]

The Deaf: Attitudes and Misconceptions

A common misconception is that all deaf people have acquired the skill of lipreading. In fact, all deaf people do not know how to read lips, and "only thirty percent of the spoken language can be deciphered by most adept lipreaders."[28]

For this reason, it cannot be assumed that if a tour guide speaks slowly and distinctly while maintaining eye contact, the deaf population visiting the museum will automatically be able to decipher and comprehend all that is said.

Another assumption is that

> The deaf person need only read the material and he will have acquired all the information provided. Their knowledge of terms is such that most of them would be unable to understand interpretation signs, let alone a transcript of a lecture. Since the majority of deaf people communicate with sign language, they speak in pictures and they think in pictures.[29]

Abstractions, imbedded sentences, and the passive voice are not a part of the average deaf individual's language-communication system, and therefore are not easily interpreted. Much of the interpretation in museums is through printed gallery books, descriptive wall plaques, audio-visual materials, speaking tours, and cassette tapes. Because these methods rely primarily on the visitor's ability to understand and hear spoken language, they discriminate against deaf people by limiting their ability to participate in museum experiences.

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[25] Allen Leitman, "Science for Deaf Children," p. 1.

[26] Ibid.

[27] Ibid.

[28] Interviews with staff at Rochester Technical Institute for the Deaf, Rochester, New York, November 26, 1976.

[29] Beechel, p. 38.

Deaf people depend on their vision for communication. These persons receive messages visually, either through lipreading or through reading manual communication. However,

> . . . no matter how well the deaf individual's perception has been developed there are limits to what he can perceive at any given moment. Unlike the hearing person who can be looking at an object or picture at the same time that he is hearing an explanation about it, the deaf person cannot look at an object or picture and at the same time read lips or sign language which give an explanation of it. Once his eyes move from the lips or signs, he has lost communication.[30]

A museum guide speaking to a group of deaf visitors cannot point to an exhibit expecting these visitors to continue lipreading or reading sign in addition to viewing the media. Furthermore,

> Because of the imprecision of communication, a deaf child is often unable to follow directions. . . . The inability of this child to do things correctly the first, second or third time he is directed leads to a feeling of inadequacy and a negative picture of himself. Therefore, there can be no more important area in the education of the deaf than the building of an atmosphere that allows for honest success in the manipulating and understanding of his environment.[31]

The responsibility of the museum to the deaf student is largely one of understanding successful ways of creating dialogue. Through dialogue the deaf child—or any other handicapped child—can come to trust the environment and undertake a learning task. This experience can be offered to every handicapped child; the museum, as a learning resource, can provide the opportunity.

Museums and the Physically Handicapped

Ellen Hicks cites a recent *Newsweek* article called "The Physically Handicapped: The Nation's Newest Civil Rights Movement" as evidence that disabled Americans are beginning to demand what everyone else has accepted as their unquestionable rights. "They can, and want to be free to live independent lives. In order to do so, they must have access to all parts of their communities, including cultural institutions." Regarding the physically handicapped, Hicks states, "The barriers they face are social as well as architectural. There seem to be few comprehensive plans for bringing people with special needs into the mainstream along with other museum visitors, which is where they want to be."[32]

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[30] Fellman, pp. 4–5.

[31] Leitman, p. 6.

Definition of Population

The physically handicapped are those whose physical or health impairment adversely affects the performance of that individual. Students with physical handicaps are classified under the categories of "orthopedically handicapped" or "other health impaired."[33]

The Physically Handicapped: Museum Accessibility

Many problems are encountered by the physically handicapped in their attempt to tour museums:

> To the disabled museum visitor, the greatest handicap is the museum itself. Although in recent years the purpose and function of most museums has been seen to alter the buildings in which they are housed and the displays themselves, they are in many cases part of the legacy of the past, unaltered and unalterable. It seems unfortunate that through this very legacy which museums are trying to preserve, a significant percentage of the population should be denied access to, or a full appreciation of the collections, merely because they happen to suffer from some disability—the loss of a "limb or sense."[34]

Ruth Velleman observes that "The reading level, curiosity, and leisure time interests of these students are very similar to those of their able-bodied peers."[35] While most museums provide settings for the latter to express these interests and facilities in which they can develop academically without the restrictions of a formal classroom setting, many museums are not accessible to physically handicapped students. One museum exhibit designer wrote in reference to the physically handicapped,

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[32] Ellen Hicks, "Editor's Notes," p. 12.

[33] John F. Putnam, "Student/Pupil Accounting."

[34] Kathy Callow, "Museums and the Disabled," p. 70.

[35] Ruth A. Velleman, "The School Library in the Education of Handicapped Children," p. 138.

> [I]n my own experience these folk are very much out of mind in any project I have worked on or am engaged with at the moment. . . . It has never been part of any of my design briefs to cater to handicapped people.[36]

But provisions for the physically handicapped must extend beyond the design of exhibits.

> The programming and planning of the physical environment for the education of exceptional students requires that many isolated elements be examined. There is a point, however, at which the seemingly isolated elements must be combined to yield a total building system. Architects can and must have a vital role in the programming and design that puts the education program and the facility into a total, unified system.[37]

Callow suggests several realistic improvements, in terms of cost and simplicity, which the average museum might consider:

> 1. To arrange easy access for wheelchairs, and some means of reaching upper levels, whenever possible.
> 2. If the latter is not possible, to provide some displays downstairs indicating the scope of the collection.
> 3. To consider the chair-bound when designing displays.
> 4. To remember cloakroom and lavatory facilities when designing new buildings or extensions.[38]

The Physically Handicapped: Attitudes and Misconceptions

> Another form of architectural barrier which should concern us and to which we have given insufficient attention is the barrier of the dependency creating environment. For example, if an attempt is made to provide all possible stimulus for the advancement of learning or of copying, if an environment is created that is totally unlike the real world, overly sophisticated, too idealized, too comfortable or too insecure, we risk the creation of dependency."[39]

Harold Snider acknowledges that museums must make themselves accessible to the handicapped, but he warns against the creation of an overprotective environment. "It is vital that docents who give tours that include handicapped visitors have the right attitude toward the handicapped. Docents must not waste time that could be spent giving a good tour trying to protect the handicapped visitor from the museum environment."[40]

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[36] Callow, p. 70.

[37] Barbara Aiello, ed., *Places and Spaces: Facilities Planning for Handicapped Children*, p. 9.

[38] Callow, p. 72.

[39] Aiello, p. 19.

Museums and the Learning Disabled and Emotionally Disturbed

Nowhere is the lack of museum programs and appropriate literature more apparent than with learning disabled and emotionally disturbed students.[41] Materials which do deal with education for these students stress consideration of their special needs with sensitivity and understanding. While frequently classified as mentally retarded by the layman due to their learning difficulties, these students possess great capacities for fulfillment from museum programs. It is hoped that this publication and the guidelines it proposes will encourage investigation of museum educational approaches for this frequently overlooked group.

Museums and the Mentally Retarded

A population group often unable to read information available in museums is the mentally retarded. The needs of these persons in the museum environment have been more neglected by researchers than any other group. Jacques Beechel's research on the needs of the mentally retarded as it relates to outdoor education provided the primary source of information regarding interpretation for mentally retarded students in the museum setting.

Definition of the Population

Although scientific knowledge and professional literature are available, "intellectual recognition is only one part of knowing about exceptionality. . . . Understanding is one thing; being able to respond and relate to exceptional people requires experience and patience."[42]

Moya Duplica reports that the essential element for meeting the needs of the special child is "the ability to form a human relationship and to sustain it, even for a brief moment. . . . In serving exceptional children, particularly mentally retarded, one must be aware of one's own reaction, and the attitude one projects. It is important to know how one feels about people who are different. Only an honest exploration of such feelings can uncover the attitude one projects."[43]

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[40] Snider, p. 19.

[41] For general resources, see "Guidelines for Museum Programs for Learning Disabled and Emotionally Disturbed Students," below.

[42] Moya M. Duplica, "The Librarian and the Exceptional Child," p. 202.

The Mentally Retarded: Attitudes and Misconceptions

Misconceptions influence attitudes, and attitudes can result in the narrowing of experiences. One step in providing a wider scope of positive experiences for retarded students visiting the museum is to dispel myths concerning their interests, needs, and capabilities.

"A common misconception about retardation is that if a person cannot speak intelligibly, he also cannot understand what is being said to him. Frequently, there is physiological damage interfering with proper speech, but the person can understand perfectly what others are saying."[44] This misconception can limit a volunteer or staff member's ability to communicate with the retarded individual and prevent the student's maximum learning experience.

"The belief that a mentally retarded person cannot learn has been one of the primary reasons the development of such people has been limited in the past. Recently, training techniques and philosophies have changed to take advantage of the long unrecognized learning potential most of them have. As a result, many are being helped to develop their fullest potential."[45]

As a group, the mentally retarded do not exhibit special needs with regard to architectural barriers, although "the severely and profoundly retarded may have some ambulatory problems. . . . An interpretive program can be a valuable tool in teaching people with mental retardation, who often have short attention spans and need to be involved with the subject matter in order to learn."[46]

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[43] Ibid., p. 201.

[44] Beechel, p. 41.

[45] Ibid.

[46] Ibid.

Federal Legislation Relating to Museum Programs for Handicapped Students

Because of concern expressed by individuals and involved groups, the Congress has passed numerous pieces of legislation in the past ten years designed to enable handicapped persons to enter the mainstream of American society. The most important legislation affecting museums is the Rehabilitation Act of 1973 as amended (Sections 502 and 504) and the Education for All Handicapped Children Act, both of which may be found later in this chapter. Legislation was enacted to meet the needs of handicapped persons without depending on capricious whim or uneven administration. Federal legislation is an effective means of developing uniform programs and treatment so that no citizens, regardless of their geographical location, will be denied the aids they require. The legislation covers library services, employment, education, architectural accessibility, and civil rights; some of it has specific implications for museum programs.

Although this publication deals specifically with museum programs for the handicapped, it is assumed that many readers will be interested in the entire spectrum of programs for the handicapped. Therefore, a brief summary of all legislation is included.

The centerpiece of the new legislation for the handicapped is the Rehabilitation Act of 1973 (PL 93–112), as amended (PL 93–516). Title V of this particular act is most relevant for museum programs.

Section 501 of the Act deals with the employment of handicapped individuals in the Civil Service. It requires that there be equal employment opportunities for the handicapped in the Civil Service and in some other jobs paid for by Federal funds. Federal agencies are required to have an Affirmative Action Employment Program for the handicapped and must also submit annual reports to the Civil Service Commission. Reasonable accommodation for the handicapped must be provided through such means as readers for the blind and architectural accessibility. For more information about Section 501, write to: *Selective Placement Division, U.S. Civil Service Commission, 1900 E Street, N.W., Washington, D.C. 20415.*

Section 502 of the Act establishes the Architectural and Transportation Barriers Compliance Board as a separate agency within the Office of Human Development in the Department of Health, Education and Welfare. The Compliance Board is mandated to carry out the terms of Public Law 90–480, which requires that any new construction or renovation using Federal funds must be architecturally accessible in terms of standards established by the American National Standards Institute. The Compliance Board also has the responsibility of consulting with Federal agencies which have received Federal funds used in the construction or renovation of buildings. Museums which receive any Federal funds are subject to regulation by the Compliance Board whenever buildings are built or renovated after 1973. Detailed information can be obtained by writing to: *Compliance Officer, Architectural and Transportation Barriers Compliance Board, Office of Human Development Services, U.S. Department of Health, Education and Welfare, 330 C Street, S.W., Washington, D.C. 20201.*

Section 503 of the Act states that persons doing business with the Federal Government must have Affirmative Action Programs for employment of the handicapped and must provide equal opportunities and reasonable accommodation for handicapped employees. Any museum which sells its services to the Federal Government in any way, in excess of $2,500, must comply with this section. Enforcement and compliance with Section 503 is conducted by the *Veterans and Handicapped Program, Office of Federal Contracts Compliance, Department of Labor, 200 Constitution Avenue, N.W., Washington, D.C. 20210.*

Section 504 of the Act provides that no otherwise qualified handicapped individual shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. Reasonable accommodation must be provided in affirmative action employment through such means as readers for the blind, amplified phones for the hearing impaired, architectural accessibility, as well as job restructuring when necessary to accommodate the abilities of a particular handicapped employee. The Federal employer must conduct an outreach program to attract qualified handicapped applicants, and it must train and promote handicapped employees on an equal basis with all employees.

This section can be considered a broad civil rights statute for the handicapped. The implementing regulations promulgated by the Department of Health, Education and Welfare are divided into several parts and contain general provisions and definitions regarding employment practices, program accessibility, preschool, elementary, and secondary education, applications in health/welfare, and other social service programs. The Office for Civil Rights of HEW will soon issue a set of guidelines for use by other Federal agencies in issuing their own regulations under Section 504. After guidelines are disseminated and each agency has included regulations appropriate to its mission, this section of the Act will be put into force. If museums receive and use Federal funds, they must comply with Section 504. Information about Section 504 may be obtained by writing to the *Director, Office of New Programs, Office for Civil Rights, Department of Health, Education and Welfare, Washington, D.C. 20201.*

Basic legislation in the area of architectural accessibility is contained in Public Law 90–480. This law states that all buildings constructed or renovated with Federal funds of any kind must be accessible to all handicapped persons.

The provision of books and periodicals for blind and physically handicapped persons has been made possible by Public Law 89–522. Books are provided in braille and in recorded form on discs or tape. Since 1931, braille and recorded books have been circulated by the Divison for the Blind and Physically Handicapped of the Library of Congress. (This division was known as the Division for the Blind until the passage of Public Law 89–522, which covered physically handicapped persons who could not read ordinary print.)

The Division provides not only braille and recorded books, but also special record players and cassette players known as "Talking Book Machines." These machines are offered to blind and physically handicapped borrowers on a permanent-loan, free-repair basis. Institutions such as museums are also entitled to borrow materials and machines, provided they are solely for the use of blind and handicapped visitors. Unfortunately, only a few thousand books and seventy periodicals are put into braille or talking books at this time. While the sighted would find a similar limitation distressing, the lack of wide diversity in braille books or talking machines has a deeper psychological effect on blind or physically handicapped persons. Without complete access to what is being written and read, they can feel hampered in their ability to participate in normal discussions and conversations. In other words, these persons may feel they are sitting on the banks of the 'mainstream' rather than moving in it.

The Division for the Blind and Physically Handicapped of the Library of Congress administers the provision of book materials and equipment through a system of 58 state and regional libraries and 106 subregional libraries. The Division has bibliographies of books related to museum subjects in the arts and sciences. All requests for information about these programs (administered under Public Law 89–522) should be addressed to the *Division for the Blind and Physically Handicapped, Library of Congress, 1291 Taylor Street, N.W., Washington, D.C. 20542.*

The Education for All Handicapped Children Act (Public Law 94–142) is the most recent and perhaps most far-reaching piece of legislation dealing with education of handicapped children. It provides free, specifically planned, but integrated, educational programs for all such children throughout the country. Under this law handicapped children must be integrated into ordinary classes in public school systems unless, by mutual consent of parents and schools, integration is not deemed appropriate. The implication for museums is that they will only need to offer a small number of tours designed specifically for handicapped children, because most of these youngsters will be a part of ordinary classes. Museums must now seek to train volunteers to provide alternative techniques for handicapped children in existing school tours. Copies of the regulation for this particular law may be obtained from the *Commissioner of Education, U.S. Office of Education, Department of Health, Education and Welfare, Washington, D.C. 20201.*

Free mailing privileges for the blind have been in force since April 27, 1904, by Order of the Postmaster General (Order 541, Section 518½). This order was amended September 13, 1912 (Order 6529), May 9, 1934 (Public Law 270, S. 1570), April 9, 1952 (Public Law 308, S. 2677), and December 16, 1967 (Public Law 90–206, H.R. 7977); it was amended into current law on August 12, 1970 (Public Law 91–375, H.R. 17070). This law states that books, pamphlets, and other reading matter in raised characters (braille) for the blind can be transmitted free of charge, with the condition that "Free Matter for the Blind" is written, stamped, or printed in the area where postage would normally be placed.

The importance of legislation described above cannot be overemphasized. It provides significant protection and legal insurance. However, voluntary recognition and response has been and remains the most effective method ever employed for improving circumstances of neglect or inadequacy.

II: Surveys

Museum Programs for Handicapped Students: A Survey of Museums

One of the purposes of the grant from the Bureau of Education for the Handicapped (BEH) was to determine the status of programs for handicapped students in museums in the United States. No major effort had been previously undertaken to make such a determination. In order to accomplish this task, a survey was developed to gather information from museum personnel. The first version of the survey was distributed at all regional meetings of the American Association of Museums (AAM) during the fall of 1976. The results were used to revise the survey into a more comprehensive questionnaire.

The target population for the revised survey was individuals in museums responsible for educational programs. The survey was sent to directors in every museum in the larger cities, as well as to randomly selected museums in smaller cities. The names and addresses were obtained from the *Official Museum Directory of the AAM for 1977*. The total number of surveys mailed out was 1,525. Of this number, 23 were returned for insufficient address, 54 respondents returned only letters or comments, and six were returned too late for inclusion in the study. Six hundred and thirty-seven completed surveys were returned by museums—a significant response of 44 percent.

The distribution of the surveys returned as they relate to city size is shown in Table 1.

Table 3 is a cross tabulation of the frequency of responses to the Museum Education Survey by type of museum and city size.

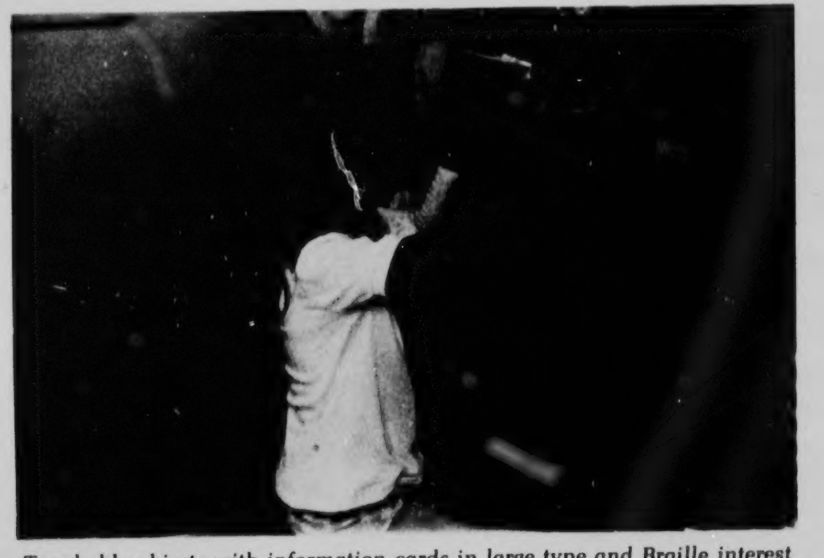
Of the 637 museums responding to the survey, 22 percent reported having organized programs for the handicapped. Tables 4–6 summarize the distribution of the museums providing programs for the handicapped, by number of handicapped visitors, size of city, and type of museum.

Of the museums reporting visits by 1,000 or more handicapped persons per year (Table 4), 56 percent provide organized programs for them, compared to only 6 percent of museums reporting 50 or fewer handicapped visitors per year.

TABLE 1

Survey Respondents by Size of City

City Size by Rank	Number of Surveys Returned (N=637)	Percentage
1–10th largest	97	15
11–20th	67	11
21–30th	40	6
31–40th	33	5
41–50th	32	5
51 or smaller	360	57



Touchable objects with information cards in large type and Braille interest museum visitors of all ages.

Objects invite close examination. Young and not so young like to touch.

TABLE 2

Survey Respondents by Type of Museum

Museum Type	Number[a] of Surveys Returned (N = 637)	Percentage
Science-Technology	66	10
Art	167	26
Natural History	134	21
History	314	49
Zoos	28	4
Children's Museums	31	5
Planetariums	41	6

[a]Total exceeds number of surveys returned because some respondents indicated more than one type of museum.

TABLE 3

Frequency of Responses by Museum Type and Size of City

City Size by Rank	All Museums	Type of Museum													
		Science & Tech.		Art		Natural History		History		Zoos		Children's Museums		Planetariums	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
1st-10th largest	97	10	15	28	17	14	10	32	10	5	18	4	13	4	10
11-20th	68	9	14	19	12	11	8	18	6	3	11	2	6	6	15
21-30th	49	3	4	8	5	11	8	16	5	3	11	4	13	4	10
31-40th	43	7	11	12	7	6	4	9	3	3	11	2	6	4	10
41-50th	43	3	4	11	7	8	6	14	5	2	7	4	13	1	4
51 or smaller	474	34	52	86	52	86	63	220	71	12	43	15	48	21	52
Total	774[a]	66	9	164	21	136	17	309	40	28	4	31	4	40	5

[a] Total exceeds number of surveys returned because some respondents indicated more than one type of museum.

A greater percentage of zoos, children's museums, and planetariums tend to have organized programs for the handicapped visitor than other types of museums. As illustrated in Table 5, size of city did not significantly influence whether or not an organized program was available.

It is apparent in Table 6 that history and art museums were the most responsive to the survey (Table 6), and that the great preponderance of museums responding were located in cities smaller than the largest fifty (Table 5).

The distribution in relation to type of museum is shown in Table 2.

TABLE 4.

Distribution of Survey Respondents Providing Programs for the Handicapped, by Number of Handicapped Visitors

Number of Handicapped Visitors Per Year	Number of Respondents	Respondents Providing Programs for Handicapped	
		Number	Percentage
0–50	177	10	6
51–100	65	13	20
101–200	64	12	19
201–300	41	14	34
301–400	16	5	31
401–500	30	7	23
501–1000	34	16	47
greater than 1000	77	43	56
uncertain	131	25	19

Equipment

Several types of equipment can be used in programs for the handicapped, ranging from a teletypewriter telephone for the hearing impaired to thermoform machines to reproduce brailled materials for the visually impaired. A survey question asked what equipment museums use to work with the handicapped, in order to determine what was actually available. Based on the responses of 637 museums, it was

TABLE 5.

Distribution of Survey Respondents Providing Programs for the Handicapped, by City Size

City Size by Rank	Number of Respondents	Respondents Providing Programs for Handicapped	
		Number	Percentage
1st-10th largest	97	23	24
11-20th	67	22	33
21-30th	40	16	40
31-40th	33	10	30
41-50th	32	6	19
51 or smaller	360	65	18

TABLE 6.

Distribution of Survey Respondents Providing Programs for the Handicapped, by Type of Museum

Type of Museum	Number of Respondents	Respondents Providing Programs for Handicapped	
		Number	Percentage
Science & Tech.	66	20	30
Art	167	49	29
Natural History	137	37	27
History & Historic Houses	314	56	18
Zoos	28	15	54
Children's Museums	31	15	48
Planetariums	41	19	46
Other	121	21	17

TABLE 7

Cross Tabulation of Access to Equipment Used in Programs for the Handicapped, by Number of Handicapped Visitors

Equipment	0–50 Handicapped Visitors		Greater Than 1,000 Handicapped Visitors	
	No. of Responses (N = 177)	Percentage[a]	No. of Responses (N = 70)	Percentage[a]
Wheelchairs	33	19	46	66
Clamp-on Mirrors for Wheelchairs	2	1	3	4
Tape Recorders	73	41	47	67
Headsets	22	12	18	26
Electric Braille Typewriters	4	2	8	11
Thermoform Machines	4	2	8	11
Teletypewriter Telephones	2	1	5	7

[a] Percentages do not total 100 since respondents noted more than one category if applicable.

found that 50 percent have tape recorders available and 34 percent have wheelchairs. Fourteen percent provide headsets for use in programs for handicapped students, while 4 percent possess braille typewriters. Only 2 percent of the museums reported having clamp-on mirrors for wheelchairs, teletypewriters, or thermoform machines.

A question on understanding the use of equipment brought varied responses. Of the 637 respondents, 82 percent understood the use of wheelchairs, 32 percent clamp-on mirrors, 79 percent tape recorders, 53 percent headsets, 25 percent electric braille typewriters, 8 percent thermoform machines, and 17 percent teletypewriters. From these figures, it can be assumed that both the understanding and availability of clamp-on mirrors, teletypewriters, braille typewriters, and thermoform machines is limited. This indicates that few museums own a wide variety of equipment for the hearing and visually impaired.

The results of the survey also indicate that access to equipment used in programs for the handicapped does not differ significantly between museums in the ten largest cities and those in cities smaller than the largest fifty. Forty percent of those responding from the ten largest cities have access to wheelchairs as compared to 28 percent responding from cities smaller than the largest fifty. Tape recorders were accessible to 46 percent of the ten largest city museums as compared to 49 percent of museums in smaller cities. Access to other equipment was almost identical.

The greatest access to wheelchairs was shown in art and history museums, as attested by 38 percent of respondents. Results also indicate that wheelchair access was the least in zoos and children's museums. Science-technology museums (along with zoos and children's museums) also reported having no clamp-on mirrors. However, all types of museums reported access to tape recorders, the largest percentage being history museums at 53 percent. Few museums reported access to thermoform machines, and even fewer reported access to teletypewriters.

In every case, comparison of museums with fewer than fifty handicapped visitors per year with those having over 1,000 visitors showed that the latter had greater access to all types of equipment (Table 7). It is difficult to determine cause and effect here; either equipment availability draws many more handicapped visitors, or a larger number of handicapped visitors necessitates having more equipment available.

Results of the survey demonstrate that in understanding the use of equipment, there does not seem to be an important relationship to the size of the city where the museum is located. For example, 79 percent of the museums in both the ten largest cities and those smaller than the largest fifty understand the use of wheelchairs. Comparison of other

TABLE 8

Average Number of Handicapped Visits by Type of Museum

Museum Type	Average Number of Visits
Science & Technology	3,432
Art	382
Natural History	1,250
History & Historic Houses	685
Zoos	7,651
Children's Museums	1,877
Planetariums	2,399

TABLE 9

Frequency of Handicapped Visits

Number of Visits Per Year	Number of Museums (N = 637)	Percentage
0–50	177	28
51–100	65	10
101–200	64	10
201–300	41	6
301–400	16	3
401–500	30	5
501–1,000	34	5
greater than 1,000	77	12
uncertain	131	20
no response	2	.3

equipment presents similar results. Thermoform machines were understood by only 9 percent of the respondents in museums in the ten largest cities and by only 7 percent in cities smaller than the largest fifty.

When access to equipment is compared to understanding its use, all types of museums show a higher degree of understanding than of access. This may imply that frequently budgets preclude the purchase of equipment.

When museums having fifty or fewer handicapped visitors per year are compared with those having over 1,000, those with more visitors also show a greater proportion of staff people who know how to use the equipment cited.

Handicapped Visitors

The survey revealed an interesting aspect of handicapped visitation. The museums in the ten largest cities averaged 4,878 handicapped visitors per year, while museums in the smallest cities (smaller than the 50 largest) averaged 318 persons. The results are misleading because several of the larger museums reported over 10,000 handicapped visitors a year, a figure which probably inflates the average number of handicapped visitors for museums in the large city category. As Table 8 indicates, zoos reported the largest number of handicapped visitors, museums of science and technology ranked second, and planetariums ranked third.

Although the three types of museums in our sample reporting the highest average number of handicapped visitors annually were zoos (7,651), museums of science and technology (3,432), and planetariums (2,399), the cumulative number of visitors to museums of science and technology shows the greatest visitorship (66 museums reporting an average of 3,432 for a total of 226,512) each year. The second largest cumulative number of visitors was to museums of history (314 museums reporting an average of 685 visitors for an annual total of 215,090). Zoos followed with 214,228 handicapped visitors annually.

Table 9 shows that a great many museums have fewer than fifty handicapped visitors per year. The table also shows that 12 percent of museums have more than 1,000 handicapped visitors per year. Table 9 also indicates that many museums have no idea how many handicapped people visit each year.

The numbers of various types of museums responding affect our results here. In reporting on visitorship by handicapped persons, seventy-seven museums reported more than 1,000 visitors annually. Of these seventy-seven, 32.5 percent were museums of history, 27.3 percent were museums of natural history, and 19.5 percent were art museums. Museums of science and technology, children's museums, zoos, and planetariums represented between 16 percent and 10 percent each of the total sample.

TABLE 10

Responsibility for Programs for the Handicapped, by City Size

	City Size			
	10 Largest		Smaller Than 50 Largest	
Responsibility	Number (N = 97)	Percentage	Number (N = 323)	Percentage
Staff	19	20	62	19
No Staff	50	52	182	56
Volunteers	22	23	62	19
Plans to Hire Staff or Consultants	2	2	4	1
No Response	4	4	13	4

It was also determined that 22 percent of the museums in the ten largest cities have fifty or fewer handicapped visitors, compared to 34 percent in cities smaller than the fifty largest. Yet 24 percent of the ten largest city museums experience more than 1,000 visitors per year as compared to 7 percent in the same smaller cities. These results were expected because larger cities have a greater population to service; consequently, the proportional number of those persons who are handicapped increases.

Twenty-one percent of science and technology museums had fifty or fewer handicapped visitors per year as compared to 15 percent who reported more than 1,000 per year. Of the art museums responding, a greater number reported fewer than fifty handicapped visitors than reported more than 1,000 per year. The same trend held for natural history and history museums, but a greater proportion of zoos, children's museums, and planetariums reported having over 1,000 handicapped visitors than those who reported having fifty or fewer.

Staff and Programs

Museums were also asked to provide information related to their staff and programs for handicapped participants. The question asked whether a museum had staff responsible for programs, had no such staff, used volunteers, or planned to hire staff or consultants to develop and implement programs.

Twenty-eight percent of respondents in the fifty largest cities stated that they do have staff responsible for programs for the handicapped, while in cities smaller than the fifty largest only 17 percent reported having such staff. This indicates that the larger the city, the more likely that staff for handicapped will be available.

Table 10 compares staff responsible for programs for the handicapped in museums in the ten largest cities and museums located in cities smaller than the largest fifty.

This comparison reveals that a large percentage of museums have no staff responsible for programs for handicapped visitors. Approximately 50 percent have no staff for such programs, and large city museums tend to use volunteers to conduct programs for handicapped participants. An insignificant percent of all museums plan to hire staff or consultants to develop and implement programs for handicapped persons during the next year.

In comparing types of museums, science and technology museums tend to use staff rather than volunteers for programs for handicapped patrons. Art and history museums and zoos use staff and volunteers nearly equally. Natural history museums use staff to a slightly greater

TABLE 11

Cross Tabulation of Type of Training for Specific Handicapped by Number of Handicapped Visitors, Size of City, and Total Respondents to Survey

Specific Handicap	Museums Responding (N = 637)		Number of Handicapped Visitors: 0–50 (N = 177)		Number of Handicapped Visitors: Greater Than 1,000 (N = 77)		City Size: 10 Largest (N = 97)		City Size: Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Visually Impaired	82	13	5	3	32	42	17	18	28	8
Hearing Impaired	57	9	2	1	25	32	16	16	19	5
Physically Handicapped	82	13	5	3	28	36	15	15	36	10
Mentally Handicapped	92	14	6	3	26	34	14	14	47	13

extent than they use volunteers. Children's museums and planetariums also tend to use staff more frequently than volunteers. Survey data also indicate that children's museums and zoos are more likely to be hiring staff or consultants within the next year compared to other types of museums.

A comparison of the use of staff or volunteers with the number of handicapped visits revealed that 63 percent of the museums reporting fewer than 50 handicapped visitors per year do not have a staff person available for them. Only 34 percent of the museums reporting more than 1,000 handicapped visitors do not have a staff member available. Five percent of the museums which indicated fewer than 50 handicapped visitors a year have staff, while 52 percent with more than 1,000 visitors have staff. Museums handling over 1,000 handicapped visitors use volunteers more frequently than do museums with only 50 or fewer handicapped visitors a year. It may be that smaller museums do not have a large enough staff to train volunteers.

Training of Staff and Volunteers

Part of the survey asked whether respondents provided training for volunteers and/or staff to work with students with visual and hearing impairments and with physically and mentally handicapped children. Results are presented in Table 11.

The data show that training for each specific handicap is more available in the ten largest cities than in smaller cities. Generally, training of staff or volunteers to work with the hearing impaired is least often provided. It also appears that the larger the percentage of trained staff, the greater the number of handicapped visitors.

One hundred eighty-four museums supplied information on who conducts their training. Seventeen percent said they use staff, 6 percent outside consultants, and 6 percent volunteers. Of those museums responding from the ten largest cities, 18 percent stated that they use staff, whereas only 13 percent of the museums in cities smaller than the largest fifty claimed to do so. There was an almost equal use of volunteers and outside consultants. Approximately 5 percent of the respondents in the two categories use both volunteers and outside consultants. Volunteers and outside consultants are equally represented as trainers in the ten largest cities and in cities smaller than the fifty largest.

In each type of museum, staff is used most often to train for each specific handicap. An increase in training seemed to increase the number of visits by handicapped persons.

Training Methods

Museum educators were asked to state the method used to train for work with handicapped students. Table 12 sums up the responses.

It is apparent that the great majority of the respondents (85 percent) provide no training. The major method of training is experience gained through practical situations; organized approaches are minimal. As Table 12 also shows, there seems to be no major difference in approaches taken by museums in the ten largest cities and in cities smaller than the largest fifty. However, Table 12 indicates that considerably fewer museums with 50 or fewer visitors provide training—even through practical experience—than do museums with over 1,000 visitors (5 percent compared to 44 percent). For the museums in the former category, training is practically nonexistent (93 percent have no training), whereas 34 percent of museums with a handicapped visitor population of 1,000 or more employ some training.

General Facilities

Table 13 reflects the availability to handicapped visitors of general facilities in museums. Respondents were permitted to check more than one category. Generally, museums with more than 1,000 handicapped visitors each year had better facilities than museums with less than 50 handicapped visitors per year. However, the available facilities in museums in the largest ten cities did not always exceed those of museums in cities smaller than the largest fifty.

The five most available facilities for the handicapped visitor were:

1. Door frames wide enough for wheelchairs
2. Ramps
3. Floor covering for ease in handling wheelchairs
4. Water fountains at a height usable for those in wheelchairs
5. Elevators

Results indicate only a small number of modifications of exhibits for visually and hearing impaired patrons.

Program Publicity

Museums were asked to provide information on how handicapped individuals are informed of museum programs for the handicapped. Table 14 sums up this part of the survey.

One trend appeared: More handicapped persons visit museums as dissemination of information increases. In almost every case, as cited in Table 14, more publicity is available from museums with over 1,000 handicapped visitors than from those with less than fifty. A greater

TABLE 12

Cross Tabulation of Type of Training Provided by Number of Handicapped Visitors, Total Museum Respondents, and Size of City

Type of Training	Museums Responding (N = 637)		Number of Handicapped Visitors				City Size			
			0–50 (N = 177)		Greater Than 1,000 (N = 77)		10 Largest (N = 97)		Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Audio-visuals	29	5	2	1	8	10	3	3	14	4
Lectures	81	13	8	5	22	29	15	15	35	10
Workshops	48	8	2	1	21	27	7	7	18	5
Practical Experience	116	18	9	5	34	44	16	16	56	16
No Training	542	85	165	93	51	66	82	85	318	88
Local Teachers	11	2	1	.5	5	6	4	4	4	1
Vocational Rehabilitation	5	1	0	0	1	1	3	3	1	.3
Panel Discussions	3	.5	0	0	2	3	1	1	2	.6
Joint Program Training Sessions	15	2	1	.5	4	5	3	3	6	2
Treated Same as Other Visitors	6	1	0	0	2	3	1	1	3	.8

TABLE 12

Continued

Type of Training	Museums Responding (N = 637)		Number of Handicapped Visitors: 0–50 (N = 177)		Number of Handicapped Visitors: Greater Than 1,000 (N = 77)		City Size: 10 Largest (N = 97)		City Size: Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Observation of Other Presentations	15	2	0	0	5	6	3	3	5	1
Past Experience with Handicapped	15	2	4	2	4	5	1	1	6	2
Museum Staff	50	8	5	3	14	18	7	7	24	7

TABLE 13

Cross Tabulation of Modified Museum Facilities by Number of Handicapped Visitors, Total Museum Respondents, and Size of City

Modification	Museums Responding (N = 637)		Number of Handicapped Visitors				City Size			
			0–50 (N = 177)		Greater Than 1,000 (N = 77)		10 Largest (N = 97)		Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Elevator	211	33	34	19	38	49	51	53	81	23
Ramps	282	44	49	28	59	77	38	39	141	39
Water Fountain at Lowered Height	214	34	32	18	40	52	33	34	101	28
Water Fountain w/Both Foot & Hand Controls	62	10	4	2	10	13	9	9	25	7
Telephones Accessible	172	27	35	20	26	34	16	16	96	27
Telephones Equipped w/Amplifiers	7	1	1	.6	1	1	1	1	2	.6
Electric Eye Doors Opening Away From Students	9	1	2	1	1	1	4	4	2	.6
Doors w/Handles Accessible	148	23	24	14	30	39	21	22	77	21

TABLE 13
Continued

Modification	Museums Responding (N = 637)		Number of Handicapped Visitors				City Size			
			0–50 (N = 177)		Greater Than 1,000 (N = 77)		10 Largest (N = 97)		Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Door Frame Wide Enough for Wheelchair Access	404	63	80	45	69	90	61	63	212	59
Curb Cuts for Those in Wheelchairs	185	29	34	19	37	48	25	26	89	25
Nursing or Medical Staff	33	5	3	2	9	12	6	6	9	3
Floor Covering for Ease in Handling Wheelchairs	251	39	43	24	44	57	39	40	131	36
Cafeteria Tables Arranged So Seating Accessible to Wheelchairs	76	12	9	5	17	22	21	22	19	5

TABLE 13

Continued

Modification	Museums Responding (N = 637)		Number of Handicapped Visitors: 0–50 (N = 177)		Number of Handicapped Visitors: Greater Than 1,000 (N = 77)		City Size: 10 Largest (N = 97)		City Size: Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Overhead Mirrors Provided at Food Service	4	1	0	0	1	1	1	1	1	.3
Toilet Booths w/Hand Rails	172	27	22	12	38	49	28	29	70	19
Kick Plates on Lavatory Doors	110	17	12	7	25	32	17	18	49	14
Theater, Auditorium, Gallery Seating for Wheelchairs	71	11	8	5	22	29	19	20	28	8
Special Headsets Available for Deaf	6	1	1	.6	3	4	1	1	2	.6
Special Amplifiers Available for Deaf	2	.3	0	0	2	3	0	0	1	.3
Chairs w/Arms	108	17	12	7	22	29	27	28	42	12
Special Signage Outside Entrance	68	11	8	5	20	26	9	9	29	8

TABLE 13
Continued

Modification	Museums Responding (N = 637)		Number of Handicapped Visitors: 0–50 (N = 177)		Number of Handicapped Visitors: Greater Than 1,000 (N = 77)		City Size: 10 Largest (N = 97)		City Size: Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Special Signage on Lavatory Doors	62	10	8	5	16	21	6	6	28	8
Special Signage at Parking Areas	151	24	25	14	28	36	21	22	84	23
Special Signage at Information Desk	169	27	37	21	33	43	33	34	80	22
Special Signage on Elevators & Ramps	30	5	7	4	6	8	4	4	13	4
Raised/Inclined Exhibit Labels Readable from Wheelchairs	144	23	25	14	33	43	19	20	75	21
Braille Labels on Exhibits	27	4	2	1	8	10	3	3	12	3

effort is also made through local schools when museums have more than 1,000 handicapped visitors per year. Signs outside museums advertising programs for handicapped persons were reported by only 2 of 637 museums. Nor does the international sign for barrier-free entrances appear to be commonly used.

Seventy-three percent of respondents reported no effort in informing potential visitors of programs especially suitable for the handicapped person. Of those reporting some type of effort, local schools (31 percent), agencies for the handicapped (27 percent), and local media (22 percent) were the most frequently used channels for information. While 42 percent of the respondents made no suggestions at all concerning methods of information dissemination, 20 percent did suggest a newsletter.

Museum-Related Publications

Museums were asked to submit the names of publications that were most often read in their particular establishment. *Museum News* was the most frequently mentioned (62 percent of the respondents). This is not a surprising statistic, since it is the official publication of the American Association of Museums (AAM) from whose directory the sample was drawn.

However, the idea of a museum newsletter focusing on handicapped persons was considered a useful idea by only 52 percent of museum educators responding.

It is interesting that the need for a newsletter was not closely correlated to the annual number of visits paid to museums by handicapped persons. As Table 15 shows, only 35 percent of museums with less than 50 handicapped visitors per year felt that there was a need for a newsletter, compared to 78 percent of those museums having more than 1,000 per year.

Respondents indicated that if a newsletter were developed, it should be under the aegis of the AAM, museum educators, or consumer groups.

Funding for Programs

The survey also asked whether or not respondents had sufficient funding to provide adequate programs for handicapped students. The results suggest that most museums do not have sufficient funds for these kinds of programs. Very few of the 637 respondents indicated adequate funding, 3 percent stated that funds were obtained through

TABLE 14

Cross Tabulation of Methods Used to Inform Handicapped of Availability of Museum Programs

Methods Used	Museums Responding (N = 637)		Number of Handicapped Visitors				City Size			
			0–50 (N = 177)		Greater Than 1,000 (N = 77)		10 Largest (N = 97)		Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Local Schools	196	31	29	16	40	52	29	30	105	29
Consumer Groups	12	2	2	1	5	6	3	3	7	2
Agencies Serving Handicapped	169	27	16	9	42	55	18	19	85	24
Local Media	137	22	25	14	28	36	14	14	78	22
Churches/Synagogues	30	5	3	2	7	9	5	5	14	4
Newsletters	22	3	0	0	8	10	4	4	13	4
Word of Mouth	9	1	2	1	1	1	3	3	3	.8
Phone Queries to Museums	13	2	3	2	1	1	3	3	3	.8

TABLE 14

Continued

Methods Used	Museums Responding (N = 637)		Number of Handicapped Visitors				City Size			
			0–50 (N = 177)		Greater Than 1,000 (N = 77)		10 Largest (N = 97)		Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Education Department of Museum	7	1	2	1	1	1	1	1	3	.8
Brochures	5	.8	0	0	3	4	0	0	3	.8
Local Homes and Agency Staff	126	20	19	11	26	34	17	18	70	19
Special Mailing	4	.6	1	.6	1	1	2	2	0	0
Signs Outside Building	2	.3	1	.6	0	0	0	0	1	.3
None	463	73	149	84	45	58	72	74	272	76

TABLE 15

Need for Newsletter, Based on Annual Handicapped Visitor Population

Number of Handicapped Visitors Per Year	Percentage of Museums Desiring Newsletter
0–50	35
51–100	65
101–200	53
201–300	54
301–400	44
401–500	66
501–1,000	79
greater than 1,000	78

grants, 1 percent through admission charge, 2 percent through contributions, and 9 percent through the museum's regular budget.

Table 16 summarizes responses regarding provision of programs for handicapped students. The two major reasons given for not providing such programs were: (1) the budget was too limited and (2) the handicapped population was considered too small to warrant the expenditure. Twenty-one percent indicated that programs for handicapped visitors were not of primary concern to the museum staff.

Museum Programs for the Blind

Certain information was requested to learn about programs for blind visitors. Table 17 is a compilation of responses in regard to such programs. More services were provided to the blind visitor in museums experiencing a large number (1,000 or more) of handicapped visitors each year. (Respondents were not asked to classify the visiting handicapped population by specific handicap.) There was no substantial difference between larger and smaller cities in relation to services provided for the blind visitor.

Providing touchable objects from museum collections was the most frequently offered service for the visually impaired, as reported by 37 percent of the respondents. Only 4 percent of respondent museums reported braille labels on exhibits. Approximately 7 percent provide cassette tours for the visually impaired, 5 percent provide museum

TABLE 16

Cross Tabulation of Reasons for Not Having Adequate Programs for the Handicapped

Reasons Cited	Museums Responding (N = 637)		Number of Handicapped Visitors				City Size			
			0–50 (N = 177)		Greater Than 1,000 (N = 77)		10 Largest (N = 97)		Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Total museum budget is too small to accommodate all of the programs desired	432	68	121	68	47	61	67	69	251	70
Handicapped population is too small to warrant expenditures at this time	188	30	82	46	6	8	18	19	124	34

Table 16

Continued

Reasons Cited	Museums Responding (N = 637)		Number of Handicapped Visitors: 0–50 (N = 177)		Number of Handicapped Visitors: Greater Than 1,000 (N = 77)		City Size: 10 Largest (N = 97)		City Size: Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Lack of exhibits deemed appropriate for use by handicapped persons	96	15	36	20	6	8	15	15	60	17
Not of primary concern to museum staff at this time	135	21	43	24	6	8	25	26	74	21
None of the above	45	7	16	9	5	6	9	9	26	7

literature in braille, on tape, or in large print, and only 2 percent of the museums provide scale models or raised line drawings. Special exhibits for blind visitors were reported by 8 percent of respondents.

The data indicate that slightly over half of respondent museums have no programs for blind visitors. It was apparent that 57 percent of the museums which provide no services for the visually impaired are also those with no staff or volunteers responsible for this consumer group. Of those museums having staff, 8 percent stated that no services were available, while 11 percent of those using volunteers offered no services.

Museum Services for the Deaf

Table 18 summarizes the extent of services provided for deaf museum visitors. Twenty percent of responding museums reported providing no services at all for the hearing impaired.

When services were provided for deaf visitors, the most prevalent methods were self-guiding brochures (22 percent) and interpreters (11 percent). Twenty percent of the museums which reported doing nothing at all for the hearing impaired said they planned to hire staff to develop programs. Even though the percentage of museums providing services was low, it is still evident that when the number of hearing impaired visitors is substantial, the museum responds by developing some aids.

Extension Programs

Extension programs beyond the confines of the museum are another method of serving handicapped persons. Analysis of data indicates that only 12 percent of the museums responding to the survey provide such a service. Eight percent of the museums in the ten largest cities provide such a service, while 10 percent of museums in the smaller cities do so.

Only 2 percent of museums with fewer than fifty handicapped visitors per year provide extension programs, as compared to 22 percent of museums which have more than 1,000 handicapped visitors. Zoos, children's museums, and planetariums appear to offer more extension programs than others.

Kinds of extension programs for the handicapped varied. The most common type was slide presentations (39 percent). Exhibits (29 percent) and demonstrations (20 percent) were the other two most frequently mentioned.

TABLE 17

Cross Tabulation of Museum Services for the Visually Impaired

Service	Museums Responding (N = 637)		Number of Handicapped Visitors: 0–50 (N = 177)		Number of Handicapped Visitors: Greater Than 1,000 (N = 77)		City Size: 10 Largest (N = 97)		City Size: Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Braille Labels on Exhibits	28	4	1	.6	10	13	3	3	9	3
Cassette Tours	44	7	7	4	11	14	6	6	22	6
Museum Literature in Braille, on Tape, or in Large Print	33	5	1	.6	14	18	6	6	13	4
Scale Models or Raised Line Drawings of Exhibits	15	2	1	.6	8	10	4	4	5	1
Touchable Objects from Museum's Collection	236	37	40	23	46	60	35	36	116	32
Special Exhibits	51	8	5	3	15	19	5	5	22	6
Large Labels	3	.5	2	1	0	0	0	0	3	.8

TABLE 17

Continued

Service			Number of Handicapped Visitors				City Size			
	Museums Responding (N = 637)		0–50 (N = 177)		Greater Than 1,000 (N = 77)		10 Largest (N = 97)		Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Trained Guides/Special Tours	19	3	5	3	4	5	4	4	7	2
Adaptable Exhibits	2	.3	0	0	0	0	0	0	0	0
Touch/Operate Exhibits	13	2	1	.6	2	3	4	4	6	2
Special Talks	13	2	4	2	3	4	4	4	3	.8
Special Classes	12	2	1	.6	3	4	0	0	7	2
Slide Shows	2	.3	0	0	1	1	1	1	1	.3
Various Services Provided on Request	20	3	2	1	5	6	1	1	10	3
Nothing	257	40	91	51	13	17	43	44	156	43

TABLE 18

Cross Tabulation of Museum Services for the Hearing Impaired

Service	Museums Responding (N = 637)		Number of Handicapped Visitors				City Size			
			0–50 (N = 177)		Greater Than 1,000 (N = 77)		10 Largest (N = 97)		Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Captioned Films and/or Slides	33	5	3	2	5	6	3	3	14	4
Supplementary Material	60	9	10	6	13	17	12	12	29	8
Self-guiding Brochures	140	22	21	12	29	38	19	20	70	19
Interpreters (signing)	69	11	7	4	22	29	13	13	30	8
Touch Tours	1	.2	0	0	1	1	1	1	0	0

TABLE 18
Continued

Service	Museums Responding (N = 637)		Number of Handicapped Visitors				City Size			
			0–50 (N = 177)		Greater Than 1,000 (N = 77)		10 Largest (N = 97)		Smaller Than 50 Largest (N = 360)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Specific Labels	4	.6	1	.6	0	0	0	0	3	.8
Live Animal Contact	1	.2	0	0	1	1	0	0	0	0
Printed Matter—Written Material	2	.3	1	.6	0	0	0	0	0	0
Groups Bring Own Interpreters	5	.8	0	0	2	3	1	1	2	.6
Special Tours	8	1	3	2	0	0	1	1	6	2
Park Slide	1	.2	0	0	0	0	0	0	1	.3
Guides	1	.2	1	.6	0	0	0	0	1	.3
Nothing	126	20	50	28	11	14	13	13	83	23

Types of Exhibits

To a large extent, the nature of a museum's collection determines the types of programs offered to handicapped students. A survey question sought to determine the percent of the exhibits which were behind glass, suspended, hanging, touchable, or presented as audio/visuals.

Table 19 reflects museum types and the characteristics of their exhibits. The standard error is given for each figure. The lower the standard error, the higher the accuracy. For example, a standard error of .10 reflects a 90 percent accuracy in the cited figure.

Results indicate that all types of museums tend to have most of their exhibits behind glass. Art museums, of course, have the highest average of suspended exhibits.

Audio/visual presentations ranked as least frequently used in art, natural history, history museums, and zoos. Planetariums rely most heavily on audio-visual exhibits.

Tours for Handicapped Students

The survey asked whether tours were provided for handicapped students. Sixty-six percent of respondent museums stated that they did provide tours specifically for handicapped students.

Eighty-six percent of the museums indicating 1,000 or more handicapped visitors per year provided tours, while only 42 percent having 50 or fewer visitors per year said that tours were provided. From this information, it appears more likely that a teacher will be able to obtain a tour for handicapped students when the museum has a high percentage of handicapped visitors.

The percentage of museums providing tours differed only slightly between museums in the ten largest cities and those in cities smaller than the largest fifty (65 percent and 61 percent).

Comparison of museum type with availability of tours is shown in Table 20.

Tour Presentation

Another survey question obtained information about how tours were presented for handicapped visitors—whether they were included in regular tours which of[illegible] no special adaptation or whether they were included in tours that had been adapted to their needs (see Table 21).

There was no major difference between the treatment of handicapped students in museums in the largest cities and that found in those in cities which are smaller. However, the responses indicate that

TABLE 19

Cross Tabulation of Museum Exhibits by Museum Types

Museum Type	Exhibit Presentation							
	Behind Glass		Suspended		Touchable		Audio-Visual Presentation	
	Number	Std. Error	Number	Std. Error	Number	Std. Error	Number	Std. Error
Science and Technology	47	.09	9	.25	30	.13	12	.20
Art	33	.07	30	.09	9	.16	4	.22
Natural History	60	.05	8	.17	16	.13	7	.19
History	41	.05	9	.10	20	.08	5	.15
Zoos	31	.23	3	.77	15	.36	2	.49
Children's Museums	39	.15	6	.35	31	.19	9	.23
Planetariums	59	.09	9	.37	15	.24	19	.23

TABLE 20

Comparison of Museum Type and Availability of Tours

Museum Type	Percentage Providing Tours
Science and Technology	68
Art	74
Natural History	67
History	65
Zoos	86
Children's Museums	87
Planetariums	83

museums with more than 1,000 handicapped visitors a year tend to separate such visitors by type of handicap, whereas museums with 50 or less handicapped visitors do not.

TABLE 21

Cross Tabulation of Treatment of Handicapped Students on Tours

Treatment	Museums Responding (N = 479)		Number of Handicapped Visitors				City Size			
			0–50 (N = 72)		Greater Than 1,000 (N = 91)		10 Largest (N = 63)		Smaller Than 50 Largest (N = 252)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Separated according to specific handicap	188	39	22	31	37	41	30	48	95	38
Included in regular tours with no adaptation of presentation	74	15	16	22	14	15	13	21	42	17
Included in regular tours with adaptation of presentation	217	45	34	47	40	44	20	32	115	46

Museum Programs for Handicapped Students: A Survey of Special Education Teachers

How frequently do handicapped students visit museums? Do they gain from the experience? Special education teachers were the most logical group to approach for relevant data about the use of museums by handicapped students. Thus, a survey was constructed based on discussions with consultants and the cooperation of the National Association of Special Education Directors and its Committee on Evaluation and Information Systems. The survey was to be administered to 10 percent of the special education teachers in the twenty-five largest cities and in two neighboring suburbs associated with each of the cities. Five areas of interest were delineated:

1. Information concerning special education and handicapped student populations utilizing museums.
2. Accessibility to museums in terms of transportation and architecture.
3. Special services offered by museums such as tours, tour guides, equipment, materials, and exhibits.
4. Teacher opinion of roles of museums in the total education of handicapped students.
5. Suggestions and comments concerning museum experiences.

A preliminary survey which focused on each of these areas was field tested. Objectives of the field test were to determine clarity and comprehension of directions. The results were used to revise the survey into final form.

In city and suburban school systems which were selected, the director of special education or his designee agreed to administer the survey.

Survey forms were mailed in early February 1977 for distribution to 1,793 special education teachers. The deadline for receipt of the completed surveys was specified as March 31, 1977. At that time, a total of 863 had been returned. An additional 22 surveys were received after the deadline, but were not included in the analysis. The response rate was 49 percent.

Table 22 indicates that the majority of respondents (51 percent) were special education teachers in self-contained classrooms. Resource teachers ranked second at 24 percent.

As Table 23 shows, the greatest response (42 percent) was from special education teachers with more than six years of teaching experi-

Blind visitors examine a scale model of a mammoth in a museum of natural history.

While listening to a taped commentary, visitors examine and compare the teeth of a mammoth and mastodon.

ence. Approximately two-thirds of all respondents had four or more years of teaching experience.

Findings indicated that 46 percent of the respondents were certified in the field of special education, while the lowest response was from those with certification for childhood education.

TABLE 22
Distribution of Special Education Teachers by Title

Title of Teacher	Number (N = 863)	Percentage
Resource Room Teacher	205	24
Self-contained Classroom Teacher	441	51
Teacher in Special Center or Diagnostic Wing	12	1
Special Education Auxiliary Teacher	32	4
Other	173	20

A greater response was received from teachers certified in elementary education (31 percent) than from certified secondary education teachers (10 percent).

Table 24 reports the nature of the handicap served by the special education respondents. In many cases, the educators revealed that they provided services to more than one kind of handicapped student (863 respondents).

Twenty-nine percent of those who responded stated that they taught children in programs for those with learning disabilities; 26 percent worked with children in programs for the mentally retarded; and 20 percent provided services for students qualified as emotionally disturbed. Only 9 percent specified services for the physically handi-

TABLE 23
Years of Special Education Teaching Experience

Years of Special Education Teaching Experience	Number of Respondents (N = 856)	Percentage
1	69	8
2–4	249	29
4–6	175	20
More Than 6	363	42

TABLE 24

Nature of Handicap Served by Special Educators

Nature of Handicap Served	Number (N = 1410)	Percentage
Learning Disabled	408	29
Deaf	83	6
Blind	57	4
Physically Handicapped	125	9
Mentally Retarded	367	26
Emotionally Disturbed	278	20
Other	92	7

capped, with 4 percent purporting to work especially with blind students.

The largest number of students who received tailored assistance from special education teachers were in the age bracket of seven to fifteen years. Thirty-seven percent of all students who received aid were between the ages of seven and nine. Thirty-three percent were between ten and twelve years of age. Only 2 percent of respondents claimed to teach children who were six or younger, and another 2 percent stated that they taught those youngsters who were sixteen to eighteen years of age.

Regarding location, 78 percent of the teachers taught in school systems in urban areas, while 22 percent taught in rural facilities. Not insignificantly, the greatest number of students served by those teachers who responded were of low social economic status (57 percent). Less frequently served were those students from families in upper income brackets (2 percent).

Table 25 presents a cross tabulation of museum visitation by special educators in the past two years by teacher title. Findings indicate that 60 percent of the 859 respondents have taken their classes to visit a museum within the past two years. With the exception of resource room teachers, over 50 percent of all teachers in each of the categories of teacher titles have taken their classes to visit a museum within the past two years.

Of those respondents providing an affirmative response, 57 percent were special educators serving children in a self-contained classroom. Five percent or less were special educators in diagnostic wings or served as auxiliary or itinerant teachers or program directors.

TABLE 25

Cross Tabulation of Special Educators Using Museum Resources within the Past Two Years by Title of Teacher

Title of Teacher	All Respondents		Used Museum in Past Two Years			Did Not Use Museum in Past Two Years		
	Number	%	Number	%[a]	%[b]	Number	%[a]	%[b]
Resource Room Teacher	201	23	71	35	14	130	65	38
Self-contained Classroom Teacher	434	51	296	68	57	138	32	40
Teacher in Diagnostic Wing	12	1	8	67	2	4	33	1
Special Education Auxiliary Teacher	32	4	24	75	5	8	25	2
Other	180	21	119	66	23	61	34	18
Total	859	100%	518	60%		341	40%	

[a] Percentage of teacher title who have/have not utilized a museum within the past two years.

[b] Percentage of total number of special educators who have/have not utilized the museum in the past two years by teacher title.

Survey results indicate that 42 percent of all first year special educators have taken their classes to visit a museum within the past two years, and 58 percent have not. Approximately 60 percent of the respondents with two or more years of experience have taken their classes to visit a museum.

As Table 26 indicates, 61 percent of teachers with certification in elementary education, secondary education, and special education have visited museums in the past two years. Of those respondents with early childhood certification, 78 percent reported visits to museums with their classes in the past two years.

The results also indicate that 46 percent of special educators who have visited museums in the past two years have special education certification. The percentage of respondents reporting to have visited a museum in the past two years, by category of teacher certification, closely parallels the percentage of those who have not visited the museum in the past two years.

TABLE 26

Cross Tabulation of Special Educators Using Museum Resources within the Past Two Years by Category of Teacher Certification

Category of Teacher Certification	All Respondents	Used Museum in Past Two Years			Did Not Use Museum in Past Two Years		
		Number	%[a]	%[b]	Number	%[a]	%[b]
Special Education	749	458	61	46	291	39	47
Elementary Education	492	300	61	30	192	39	31
Secondary Education	157	96	61	10	61	39	10
Early Childhood	46	36	78	4	10	22	2
Other	169	103	61	10	66	39	11
Total	1613[c]	993	62%		620	38%	

[a] Percentage of educators with certification in category who have/have not utilized museums within the past two years.

[b] Percentage of total number of special educators who have/have not used a museum in the past two years by category of teacher certification.

[c] Total is larger than 863 (the total number of surveys returned) because some teachers are multiply certified.

Survey results indicate that, of the special education teachers who have taken their classes to visit a museum in the past two years, 27 percent taught the mentally retarded, 25 percent the learning disabled, and 21 percent the emotionally disturbed. Only 4 percent served the blind, 7 percent the deaf, and 10 percent the physically handicapped.

Of those teachers who said they had visited a museum with their classes in the past two years, 73 percent were teachers of the mild to moderately handicapped. Over 50 percent of the teachers of each severity of handicap (from mild to severe) have taken their classes to visit a museum in the past two years.

Less than 50 percent of the special education students ages four to six and sixteen to eighteen were taken to visit a museum within the past two years. Ninety-six percent of the respondents instructed students between the ages of seven and fifteen years.

Table 27 presents information about the location of the school system in which respondents taught. Seventy-eight percent of the respondents were in school systems in urban areas. Sixty-three percent of these teachers had taken their classes to visit a museum in the past two years, compared to only 54 percent of teachers in rural school systems.

Table 28 demonstrates that over 50 percent of the teachers of students in each class of socio-economic status responded that they had taken their classes for museum visits in the past two years.

TABLE 27

Cross Tabulation of Museum Use by Special Educators within the Past Two Years with Location of School System

Location of School System	All Respondents		Used Museum in Past Two Years			Did Not Use Museum in Past Two Years		
	Number	%	Number	%[a]	%[b]	Number	%[a]	%[b]
Urban	661	78	414	63	81	247	37	75
Rural	182	22	99	54	19	83	46	25
Total	843	100%	513	61%		330	39%	

[a] Percentage using/not using museum within the past two years by location of school system.

[b] Percentage of total number indicating they had/had not used museum resources within the past two years.

TABLE 28

Cross Tabulation of Museum Use by Special Educators Past Two Years by Socio-economic Status of Students Taught

Socio-economic Status of Students Taught	All Respondents	Used Museum in Past Two Years		Did Not Use Museum in Past Two Years	
		Number	Percentage	Number	Percentage
Low	587	361	61	226	39
Middle	375	220	59	155	41
Upper	51	35	69	16	31
Total	1013	616	61	397	39

Table 29 provides information about the type of museums and frequency of visits by special educators in the past two years. It can be noted that, as the total number of visits increases, the percentage of the teachers who have made more than one museum visit decreases. Fifty-nine percent of all respondents have made one museum visit with their classes in the past two years, whereas only 6 percent of the respondents have made four visits.

Survey results indicate that zoos (21 percent) and natural history museums (18 percent) tend to be the most frequently visited, while aquariums (1 percent) and history museums (1 percent) are the least frequently visited by those who responded.

Those surveyed were asked whether transportation was a problem. Forty-seven percent of the respondents indicated that the availability of transportation was a problem; 53 percent said it was not. Furthermore, 57 percent who had difficulty obtaining transportation took their classes to visit within the past two years in spite of it, while an even greater number (77 percent) who did not have difficulty securing transportation visited museums with their classes.

Public school transportation was the most frequent mode of transportation employed by special education teachers (56 percent) for trips to museums. Both privately chartered vehicles and transportation provided by parents showed nearly equal use (15 percent versus 13 percent).

A survey item consisting of twenty-four parts was used to gather information about museum accessibility to handicapped students (see

TABLE 29

Frequency Distribution of Number of Visits by Special Educators to Each Type of Museum in the Past Two Years

Type of Museum	All Respondents	Number of Visits											
		1 Visit			2 Visits			3 Visits			4 Visits		
		Number	%[a]	%[b]	Number	%[a]	%[b]	Number	%[a]	%[b]	Number	%[a]	%[b]
Art Museum	204	128	63	14	50	25	11	11	5	11	15	7	16
Planetarium	194	134	69	14	48	25	10	9	5	9	3	2	3
Natural History Museum	290	170	59	18	90	31	19	12	4	12	18	6	20
Cultural Museum	173	108	62	11	43	25	9	14	8	14	8	5	9
Science & Technology	220	135	61	14	66	30	14	11	5	11	8	4	9
Zoo	401	201	50	21	140	35	30	33	8	33	27	7	30
Other	119	71	60	7	27	23	6	9	8	9	12	10	13
Total	1601	947	59%		464	29%		99	6%		91	6%	

[a] Percentage of special educators visiting "X" type of museum by number of visits made.
[b] Percentage of special educators making "X" number of visits by the type of museum visited.

Table 30). The greatest response to each question regarding provision of facilities was "not applicable." There was not an overwhelming response to the availability of any of the museum facilities surveyed. The facilities which special educators indicated were most available in museums were elevators (37 percent) and doors with a frame wide enough for wheelchair access (28 percent).

Of those special educators who visited museums within the past two years, 78 percent had notified the museums about the needs of their students before the visit. Sixty-five percent indicated that the museums did provide tours for their handicapped students, and of these, 99 percent had notified the museum of special needs before the tour.

Cross tabulation of the data also shows that of all those who notified the museum prior to their visit, 75 percent said that tours for the handicapped were provided and 21 percent did not receive a tour.

Thirty-three percent of special education teachers who stated they had visited a museum within the past two years reported that no organized tour was provided for their students. Fifteen percent of tour groups were accompanied by a guide, and 20 percent were provided with a modified tour. Thirty-two percent received a pre-planned tour based on the teacher's specifications.

The survey also posed a question regarding the frequency with which museums assessed the needs of handicapped students prior to a visit. Each respondent was given the option of checking more than one item. The results are shown in Table 31.

Forty-nine percent of the teachers indicated that they were consulted by museum staff for suggestions related to the visits. Eighteen percent of the respondents indicated that they wanted to provide suggestions but were not asked. Only 4 percent indicated that museums were not receptive to suggestions that were offered. It is interesting to note that 28 percent of the special education teachers never considered making a recommendation to the museum.

Table 31 also indicates that when consulted by the museum staff, special educators presented information in six areas of need, with approximately equal emphasis on each area (13 percent to 20 percent). The small range (3% to 5%) of responses indicating that museums were not receptive to suggestions was noted with interest.

Cross tabulations showed that 55 percent of special educators were consulted about their students' interests; 57 percent about the academic level of their students; 47 percent about physical limitations; 41 percent about the best methods of presentation; 51 percent about the length of the upcoming tour; and 46 percent about the language level of the students.

TABLE 30

Museum Provision of Modifications to Handicapped Students

Modification	Total Responses	Available to Handicapped Students		Not Available to Handicapped		Applicable to Handicapped Students; No Chance to Observe		Not Applicable to Handicapped Students	
		Number Responding	%	Number Responding	%	Number Responding	%	Number Responding	%
Ramps	607	152	25	77	13	25	4	353	58
Elevators	582	217	37	69	12	38	7	258	44
Toilet Booth w/Handrails	597	99	17	97	16	63	11	338	57
Kickplates on Doors to Lavatory	583	92	16	80	14	87	15	324	56
Water Fountain at Lowered Height	597	137	23	98	16	39	7	323	54
Water Fountain w/ Both Foot & Hand Controls	559	75	13	126	23	58	10	300	54
Overhead Mirrors Provided at Food Service	590	20	3	146	25	105	18	319	54
Tables Arranged so Seating Accessible to Wheelchairs	592	55	9	96	16	64	11	377	64

TABLE 30

Continued

Modification	Total Responses	Available to Handicapped Students		Not Available to Handicapped Students		Applicable to Handicapped Students; No Chance to Observe		Not Applicable to Handicapped Students	
		Number Responding	%	Number Responding	%	Number Responding	%	Number Responding	%
Telephones Accessible to Wheelchairs	599	25	4	112	19	71	12	391	65
Telephones Equipped w/Amplifiers	587	13	2	135	23	70	12	369	63
Theater, Auditorium, Gallery Seating for Wheelchairs	597	55	9	105	18	62	10	375	63
Special Headsets or Amplifiers Available for Deaf	571	19	3	140	25	54	9	358	63
Special Entrance & Exit									
a. Ramps	594	154	26	69	12	36	6	335	56
b. Elevators	574	153	27	80	14	52	9	289	50
c. Electric Eye Doors Opening Away from Students	579	81	14	141	24	71	12	286	49

TABLE 30

Continued

Modification	Total Responses	Available to Handicapped Students		Not Available Handicapped Students		Applicable to Handicapped Students; No Chance to Observe		Not Applicable to Handicapped Students	
		Number Responding	%	Number Responding	%	Number Responding	%	Number Responding	%
d. Doors w/ Accessible Handles	583	47	8	103	18	54	9	379	65
e. Door Frame Wide Enough for Wheelchair Access	596	167	28	28	5	26	4	375	63
f. Curb Cuts for Wheelchairs	581	111	19	74	13	33	6	363	62
Special Parking Designated for Handicapped	592	131	22	96	16	45	8	320	54

TABLE 30

Continued

Modification	Total Responses	Available to Handicapped Students		Not Available Handicapped Students		Applicable to Handicapped Students; No Chance to Observe		Not Applicable to Handicapped Students	
		Number Responding	%	Number Responding	%	Number Responding	%	Number Responding	%
Nursing or Medical Stations	567	102	18	95	17	144	25	226	40
Floor Covering Providing Easy Wheelchair Handling	582	125	21	54	9	40	7	363	62
Special Signage									
a. Outside Entrance	586	81	14	117	20	68	12	320	55
b. On Lavatory Doors	586	105	18	110	19	62	11	309	53
c. Info. Desk	580	81	14	112	19	77	13	310	53

TABLE 31

Teachers' Perceptions of Museum Receptiveness to Teacher Input in Planning Tours

Class Needs	All Responses		Was Consulted by Museum Staff			Wanted to Suggest but Was Not Asked			Museum Not Receptive to Suggestions Offered			Never Considered Making Recommendations		
	Number	%	Number	%[a]	%[b]	Number	%[a]	%[b]	Number	%[a]	%[b]	Number	%[a]	%[b]
Interests of Students	572	17.1	314	55	19	101	18	17	23	4	17	134	23	14
Academic Levels of Students	575	17.2	328	57	20	98	17	16	24	4	18	125	22	13
Physical Limitations of Students	540	16.1	254	47	15	84	16	14	18	3	14	184	34	19
Best Method of Presentation	549	16.4	223	41	13	111	20	18	24	4	18	191	35	20
Suggested Length of Tour	554	16.6	282	51	17	97	18	16	17	3	13	158	29	17
Language Level of Students	554	16.6	254	46	15	119	21	20	26	5	20	155	28	16
Total	—	—	1655	49%		610	18%		132	4%		947	28%	

[a] Percentage of types of class needs assessed by museum responsiveness to teacher input.
[b] Percentage of museum responsiveness to teacher input by types of class needs assessed.

Results of a cross tabulation of experience by teachers at a museum, as well as whether or not tours were provided, are shown in Table 32. Notably, 65 percent of respondents indicated that museums did provide tours, but the table indicates that the nature of the tours varied. Of those indicating that tours were provided, 14 percent said that students explored museums on their own, while 27 percent stated that modified tours were given based on student needs. Forty-four percent received pre-planned tours based on the teacher's input.

In assessing tour guides, 25 percent of the respondents noted that the length of the tour was "appropriate to the group" of handicapped students participating. It appeared, however, that lack of knowledge by museum staff about the general characteristics and language level of specific handicapped visitors posed a problem in the museum's attempts to provide an adequate presentation.

How the special education teacher perceived the class visit to a museum was calculated through another survey question. The results for all those respondents who perceived a class visit to a museum as a challenging and motivating experience, as well as their assessment of tour guides, is presented in Table 33. Sixty percent of the total responses (1,717) indicated that the tour guides were appropriate to the groups, and 19 percent of the responses indicated that tour guides were inappropriate to the group being toured.

In cross tabulating each of the five categories it was noted that length of tour received the most "appropriate to group" responses, by 24 percent of the respondents. Twenty-six percent of the respondents felt that the language level of the guides was inappropriate to the touring student. Twenty-four percent indicated that the knowledge of the guides of the general characteristics and needs of a specific handicapped population touring was also inappropriate. However, over 50 percent of the respondents in each area of assessment indicated that the guides were appropriate to the needs of the defined population.

In the cross tabulation of special educators who perceived a class visit to a museum as a "cognitive learning experience" and assessment of tour guides, the results were somewhat different. In cross tabulating "appropriate to group" to each of the five defined areas of assessment, "length of tour" was still deemed to be the most appropriate category, as noted by 28 percent of the respondents. Assessment of the language level of presentation by tour guides and their knowledge of the general characteristics of a specific handicapped population was again indicated by 26 percent and 24 percent as being inappropriate to the needs of the touring handicapped students.

A cross tabulation was also made of the special educators who indicated that a class visit to a museum was "just another field trip" and

TABLE 32

Cross Tabulation of Teachers' Experience and Museums' Provision of Tours for the Handicapped

Responses to Question: Were Tours for Handicapped Provided by Museums?	All Responses		No Organized Tours Provided—Students Explored on Their Own			Unadapted Tour—Not Based on the Needs of Pupil Population			Group was Provided With a Modified Tour			Group Was Given a Pre-planned Tour Based on Info Provided by Teacher		
	Number	%	Number	%[a]	%[b]	Number	%[a]	%[b]	Number	%[a]	%[b]	Number	%[a]	%[b]
Yes	360	65	50	14	29	57	16	71	96	27	77	157	44	89
No	193	35	122	63	71	23	12	29	29	15	23	19	10	11
Total	553	100%	172	31%		80	14%		125	23%		176	32%	

[a] Percentage of tours provided/not provided for the handicapped under each of four headings.
[b] Percentage of each tour type by whether or not provided for the handicapped.

TABLE 33

Cross Tabulation of Areas of Assessment and Assessment of Tour Guides by Special Educators Who Perceived a Class Visit to a Museum as a Challenging, Motivating Experience Allowing for Personal Exploration

Areas of Assessment	All Respondents		Assessment of Tour Guides								
			Appropriate to Group			Inappropriate to Group			No Opportunity to Observe		
	Number	%	Number	%[a]	%[b]	Number	%[a]	%[b]	Number	%[a]	%[b]
Knowledge of General Characteristics of Specific Handicapped Population	340	20	180	53	18	78	23	24	82	24	22
Language Level of Presentation	348	20	200	57	19	84	24	26	64	18	17
Availability to Pick Up on and Relate to Interest of Specific Children in Group	344	20	214	62	21	56	16	18	74	22	20

TABLE 33

Continued

			Assessment of Tour Guides								
Areas of Assessment	All Respondents		Appropriate to Group			Inappropriate to Group			No Opportunity to Observe		
	Number	%	Number	%[a]	%[b]	Number	%[a]	%[b]	Number	%[a]	%[b]
Length of Tour	344	20	247	72	24	37	11	12	60	17	16
Availability to Introduce Museum Media through Various Modalities of Presentation	341	20	186	55	18	64	19	20	91	27	25
Total	1717	100%	1027	60%		319	19%		371	21%	

[a] Percent of areas of assessment by assessment of tour guides.

[b] Percent of assessment of tour guides by areas of assessment.

their assessment of tour guides. Only 148 responses were tabulated. Of these, only 16 percent of the respondents in this cross tabulation assessed the tour guides as being appropriate to the group, 36 percent indicated inappropriateness, and 48 percent reported having no opportunity to observe the tour guides. Forty-three percent of the respondents indicated that the length of the tour was appropriate.

Table 34 lists the types of introductory materials furnished to special education teachers by museums. Fifty-two percent of responding teachers indicated that no introductory materials were sent. Of those options provided in the survey, 24 percent indicated that pre-visit activities was the item most frequently provided to the teachers. However, respondents indicated that workbooks were least frequently provided by museums as pre-visit materials. Only 3 percent indicated that workbooks were made available to them for use prior to a museum visit.

A cross tabulation was made of those special educators who attended museums within the past two years along with their students. Of the total responses, 98 percent of the special educators indicated that they had accompanied their students to the museum. Eighty-five percent of the teachers who indicated that they accompanied their students on a field trip had visited the museum with their class within the past two years.

Teachers surveyed were also given a list of post-visit materials that museums could mail to them after the tour. The list included the following choices: gallery books, classroom experiences such as plays or experiments, creative writing lessons, or suggested art activities.

TABLE 34

Respondents Receiving Introductory Materials Sent by the Museum to the School Prior to the Class Visit

Introductory Materials	Number (N = 743)	Percentage
Pre-visit Activities	180	24
Films, Slides	43	6
Vocabulary Lists	53	7
Workbooks, Introductory Readers	19	3
Bibliographies	65	9
None of the Above	383	52

Six hundred thirty-three responses on post-visit choices and perception of the teachers regarding museum choice of material were cross tabulated (see Table 35).

It is apparent that the majority of teachers did not receive any post-visit suggestions from museums. As Table 35 shows, there was not a great deal of difference in the percentages of teachers receiving classroom experiences, creative writing lessons, and suggested art activities.

Among the materials available for purchase in museums, special education teachers who had made museum visits in the past two years reported that children's guidebooks (30 percent) and models (26 percent) were most available. Other materials mentioned were raised line drawings and maps, braille literature describing museum exhibits, braille guidebooks, captioned slides, and cassette tapes. The responses showed that materials for use by deaf and blind visitors comprised the items least available for purchase at museum shops.

Tables 36 through 39 present the results of the cross tabulation of "numbers of years of teaching experience" with teachers' perceptions of the role of museums in the educational system. Teachers were asked to rank each of the choices from one to five, number one having the highest priority and number five the least.

Table 36 highlights the response of special education teachers having one year or less of teaching experience. Eighty-one percent of this group ranked "serving as a supplement or enrichment activity to planned instructional curriculum" as the museum role which was most

TABLE 35

Post-Visit Materials Received by Special Educators

Post-Visit Material	Number (N = 633)	Percentage
Gallery Books	31	5
Classroom Experiences (such as plays, experiments, or designing an exhibit)	71	11
Creative Writing Lessons	66	10
Suggested Art Activities	90	14
No Suggestions Made by Museum	375	59

TABLE 36

Cross Tabulation of Special Educators with One Year of Teaching Experience and Ranking of Special Education Teachers' Perceptions of the Museum Role in The Educational System

Special Educators' Perceptions of Museum Role	All Responses		Rank Order of Perceptions									
			1st		2nd		3rd		4th		5th	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Serves as Supplement to Regular Curriculum	59	20	48	81	10	17	0	0	1	2	0	0
Provides Materials for Use in Classroom	58	20	1	2	18	31	17	29	13	22	9	16
Serves as Focal Point of Instructional Curriculum	58	20	2	3	10	17	20	34	20	34	6	10
Provides Creative Experiences Not Directly Related to Regular Classroom Curriculum	58	20	9	16	20	34	14	24	15	26	0	0

TABLE 36

Continued

Special Educators' Perceptions of Museum Role	All Responses		Rank Order of Perceptions									
			1st		2nd		3rd		4th		5th	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Provides Site for Field Trip w/No Specific Educational Objective	56	19	0	0	0	0	8	14	6	11	42	75
Total	289	99	60	21	58	20	59	20	55	19	57	20

important. Thirty-four percent of the teachers responding having a year or less of experience ranked "providing creative experiences that are not directly related to the regular classroom curriculum" as the second most important role of museums. Ranked fifth by 75 percent of these respondents was their perception that a museum's role was "to provide a site for a field trip with no specific educational objective."

Although the percentages differ, the ranking of items was identical for special education teachers with two to four years, four to six years, and more than six years of teaching experience (see Tables 37–39).

The perception that museums serve as "a supplement or enrichment to regular class curriculum" was ranked first by all three groups (78 percent of all respondents with two to four years of teaching experience, 70 percent of those with four to six years, and 70 percent with more than six years of teaching experience).

"To serve as the focal point of instructional curriculum" was ranked second by 29 percent of those with two to four years experience, 32 percent of those with four to six years, and 31 percent of those with over six years of experience.

Ranked third in perception of special teachers was the need "to provide materials to be used in the classroom": 33 percent of respondents with two to four years of experience, 37 percent with four to six years, and 36 percent with more than six years of teaching experience.

The museum's role of "providing creative experiences that are not directly related to the regular classroom curriculum" was ranked fourth by 31 percent of teachers having two to four years of experience, 30 percent of those with four to six years, and 34 percent of those with more than six years of experience.

Ranked last by all groups was the statement that the museum's role was "to provide a site for a field trip with no specific educational objective." Seventy-six percent of teachers having two to four years experience felt this was the least important role of the museum, 77 percent of those with four to six years, and 84 percent of those with more than six years experience perceived this as the least important function.

Table 40 sums up the results of teacher response related to the nature of the exhibits they encountered on their museum visit. The number of responses cross tabulated was 2,887.

Twenty-seven percent of the respondents indicated that 66–84 percent of the exhibits they encountered were behind glass. The greatest response for touchable exhibits was in the 1–15 percent column, as noted by 63 percent of those responding in this category. Exhibits suspended or hung from the wall or ceiling received the greatest number of responses (55 percent) in the 1–15 percent column.

TABLE 37

Cross Tabulation of Special Educators with 2–4 Years of Teaching Experience and Ranking of Special Education Teachers' Perceptions of the Museum Role in Educational System

Special Educators' Perceptions of Museum Role	All Responses		Rank Order of Perceptions									
			1st		2nd		3rd		4th		5th	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Serves as Supplement to Regular Curriculum	217	20	170	78	27	12	15	7	2	.9	3	1
Provides Materials for Use In Classroom	212	20	11	5	56	26	69	33	60	28	16	8
Serves as Focal Point of Instructional Curriculum	215	20	12	6	62	29	59	27	54	25	28	13
Provides Creative Experiences Not Directly Related to Regular Classroom Curriculum	216	20	31	14	56	26	56	26	67	33	6	3

TABLE 37

Continued

Special Educators' Perceptions of Museum Role	All Responses		Rank Order of Perceptions: 1st		2nd		3rd		4th		5th	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Provides Site for Field Trip w/No Specific Educational Objective	212	20	5	2	10	5	14	7	22	10	161	76
Total	1072	100	229	21	211	20	213	20	205	19	214	20

TABLE 38

Cross Tabulation of Special Educators with 4–6 Years of Teaching Experience and Ranking of Special Education Teachers' Perceptions of the Museum Role in Educational System

Special Educators' Perceptions of Museum Role	All Responses		Rank Order of Perceptions									
			1st		2nd		3rd		4th		5th	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Serves as Supplement to Regular Curriculum	162	20	114	70	29	18	13	8	6	4	0	0
Provides Materials for Use in Classroom	161	20	11	7	27	17	59	37	46	29	18	11
Serves as Focal Point of Instructional Curriculum	166	20	8	5	52	32	47	29	37	23	17	11
Provides Creative Experiences Not Directly Related to Regular Classroom Curriculum	159	20	28	18	47	30	35	22	48	30	1	.6

TABLE 38
Continued

Special Educators' Perceptions of Museum Role	All Responses		Rank Order of Perceptions									
			1st		2nd		3rd		4th		5th	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Provides Site for Field Trip w/No Specific Educational Objective	158	20	3	2	4	3	11	7	19	12	121	77
Total	801	100	164	20	159	20	165	21	156	19	157	20

TABLE 39

Cross Tabulation of Special Educators with More Than 6 Years of Teaching Experience and Ranking of Special Education Teachers' Perceptions of the Museum Role in Educational System

Special Educators' Perceptions of Museum Role	All Responses		Rank Order of Perceptions									
			1st		2nd		3rd		4th		5th	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Serves as Supplement to Regular Curriculum	324	20	237	70	55	17	20	6	10	3	2	.6
Provides Materials for Use in Classroom	319	20	17	5	80	25	114	36	85	27	23	7
Serves as Focal Point of Instructional Curriculum	317	20	27	9	97	31	100	32	72	23	21	7
Provides Creative Experiences Not Directly Related to Regular Classroom Curriculum	317	20	53	17	81	26	70	22	109	34	4	1

TABLE 39

Continued

Special Educators' Perceptions of Museum Role	All Responses		Rank Order of Perceptions									
			1st		2nd		3rd		4th		5th	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Provides Site for Field Trip w/No Specific Educational Objective	310	20	4	1	6	2	17	5	23	7	260	84
Total	1587	100	338	21	319	20	321	20	299	19	310	20

TABLE 40

Method of Exhibit Presentation as a Percent of Total Exhibits Viewed by Special Educators

Method of Exhibit Presentation	All Responses		1–15%		16–34%		35–65%		66–84%		85–100%	
	#	%	#	%	#	%	#	%	#	%	#	%
Behind Glass	550	19	86	16	68	12	134	24	148	27	114	21
Touchable	530	18	334	63	86	16	49	9	29	5	32	6
Suspended from Ceiling or Wall	464	16	253	55	127	27	44	9	24	5	16	3
Participatory	436	15	319	73	58	13	27	6	17	4	15	3
Static Displays	424	15	176	42	77	18	60	14	60	14	51	12
Audio-Visual	483	17	254	53	96	20	65	13	28	6	40	8
Total	2887	100	1422	49	512	18	379	13	306	11	268	9

Very few participatory exhibits were encountered in museum visits. as evidenced by 73 percent of responses in the 1–15 percent column for this category. Static displays were also infrequently encountered: 42 percent of responses were in the 1–15 percent category. Of those who checked audio/visual presentation. 53 percent indicated they encountered this type of exhibit 1–15 percent of the time. Generally. exhibits behind glass were the most frequently encountered.

A cross tabulation of visibility of display and perception of museum visit compared to the total educational experience of the student was made (Table 41). Sixty-six percent of the respondents perceived their class visit to a museum as "a challenging. motivating experience for students. which allowed for personal exploration." Twenty-eight percent perceived their visit as "a cognitive learning experience," and 5 percent found it "just another field trip." Only .3 percent perceived their class visit to a museum to be "of no value."

A question was posed to determine the special services provided for handicapped students on their tour of the museum. Special educators were asked to indicate whether the services were available. not available. or not applicable. The results are presented in Table 42.

Sixty-three percent of the respondents indicated that special presentations were available for their student population. 63 percent also indicated that demonstrations were also provided. and 44 percent indicated the availability of tactile materials. Least available were braille literature (1 percent). braille labeling exhibits (2 percent). and captioned films for the deaf (2 percent).

Table 43 sums up type of museums visited by number of visits by respondents during the past two years. No one reported visiting any museum more than four times. There was one response for visiting a zoo four times within the past two years and two responses for four visits to a planetarium.

Zoos and natural history museums had the highest percentages for one visit (52 percent and 39 percent).

The responses were different for multi-visits. Art museums ranked first for three visits with 52 percent; planetariums ranked second with 49 percent. Ranking first for two visits within the past two years were cultural museums and planetariums, both at 39 percent.

The results of this survey lead to several conclusions about the use of museums by special education teachers. First, it is apparent that such teachers do make use of museums as enrichment resources in the education of handicapped children, and that they tend to use museum visits in ways related specifically to curriculum. Second, museums could be more responsive to the needs of special education teachers by providing better training for their guides, especially using language at

TABLE 41

Cross Tabulation of Museum Use by Special Educators within the Past Two Years and Special Educators' Perceptions of the Purpose of a Museum Visit

Perception of Purpose of Visit	**All Responses**		**Used Museum Within Past Two Years**			**Did Not Use Museum Within Past Two Years**		
	Number	**%**	**Number**	**%[a]**	**%[b]**	**Number**	**%[a]**	**%[b]**
Challenging, Motivating Experience—Allowing for Personal Exploration	520	68	332	64	66	188	36	71
A Cognitive Learning Experience	210	27	142	68	28	68	32	26
"Just Another Field Trip"	37	5	27	73	5	10	27	4
Of "No Value"	2	.2	2	100	.3	0	0	0
Total	769	100.2%	503	65%		266	35%	

[a] Percentage of special educators with "X" perception by museum use/nonuse within the past two years.
[b] Percentage of museum use/nonuse within the past two years by special educators' perception of the purpose of a museum visit.

TABLE 42

Special Services Provided for the Handicapped Student while Touring the Museum

Special Services	Total Responses	Available		Not Available		Not Applicable	
		Number	%	Number	%	Number	%
Teletype Machines	526	20	4	176	33	330	63
Cassette Tours for Blind	542	22	4	79	15	441	81
Captioned Films for Deaf	540	10	2	103	19	427	79
Gallery Booklets for Deaf	537	19	4	92	17	426	79
Braille Literature	540	7	1	78	14	455	84
Braille Labels on Exhibits	539	12	2	80	15	447	83
Raised Line Drawings & Maps	537	49	9	102	19	386	72
Tactile Materials	549	241	44	111	20	197	36
Demonstrations	556	349	63	110	20	97	17
Special Presentations	554	349	63	110	20	95	17

the optimum level for understanding by handicapped children. It was found that, in most instances, the language used was too complex. Third, museums could assist special education teachers by providing both pre- and post-visit materials specifically designed for the needs of children with handicaps. Finally, in interacting with exhibits, the experience of students who are handicapped might be enhanced if there were more opportunities for handling, touching, and using senses other than sight.

Based on the results of this survey, one question which museum educators might ask themselves is "What characteristics do zoos and museums of natural history have which make them the most often visited by groups of handicapped students?" A search for the answer may lead to innovative methods for presenting and interpreting objects and artifacts in other types of museums.

TABLE 43

Class Visits by Museum Types

Museum Type	All Respondents		1 Visit		2 Visits		3 Visits		4 Visits		5 Visits	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Art Museum	177	8	30	17	55	31	92	52	0	0	0	0
Natural History Museum	581	26	225	39	208	36	148	25	0	0	0	0
Cultural Museum	295	13	73	25	114	39	108	37	0	0	0	0
Science and Technology Museum	371	17	113	30	129	35	129	35	0	0	0	0
Planetarium	244	11	28	11	95	39	119	49	2	.2	0	0
Zoo	507	23	266	52	130	26	110	22	1	.2	0	0
Other	45	2	17	38	14	31	14	31	0	0	0	0
Total	2220	100	752	37	745	27	720	36	3	.1	0	0

Museum Programs for Handicapped Students: A Survey of Consumers

Survey Procedures

Information provided by consultants and members of national consumer[1] groups was used to develop a survey form for deaf, blind, and physically handicapped persons. The survey was distributed through the efforts of the major consumer groups of handicapped people in the United States: the National Federation of the Blind, the National Association of the Deaf, and the National Paraplegia Foundation. Since there are no mailing lists obtainable from these organizations which list specific chapters and officers, packages of the survey form with return envelopes were sent to state affiliates for distribution to members in the larger cities. It was then the responsibility of the state affiliate and local chapters to disseminate the survey to their members.

Care was taken to prepare an edition of the survey in braille for blind persons and an edition of the survey was prepared for the deaf using uncomplicated sentences. Each survey took into consideration the particular condition of the disability group.

Each of the three consumer groups was sent 1,500 surveys. We received a return of 118 surveys from the blind, 336 from the deaf, and 111 from the physically handicapped. This low rate of response provided insufficient data for statistically significant correlations.

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[1] In this report, the term "consumer" means handicapped person.

Findings

Survey of Physically Handicapped Persons

Part I

There were 111 respondents to the survey tailored for physically handicapped persons. Although of the deaf, blind, and physically handicapped persons surveyed, the latter were least inclined to visit a museum, nevertheless, 56 percent of physically handicapped respondents stated that they had attended a museum since becoming handicapped. Sixty-six percent of those who responded claimed that they preferred to tour museums with family or friends, and 29 percent chose to visit independently, with no guide.

Seventy-two percent of the handicapped persons responding thought that museums should train their regular staff to work with the handicapped visitor. In ranking physical accommodations necessary for the needs of handicapped visitors, ramps were considered the most important, followed by accessible door frames, elevators, accessible bathrooms, and curb cuts. A fair number of those queried suggested that museums provide special parking facilities.

Eighty-four percent of the respondents thought that funding of programs for handicapped persons should be provided from the museum's normal budget. Other methods of funding recommended were admission charges and private donations. Two-thirds indicated that they were willing to pay a full admission fee if admissions were charged to the general public.

Seventy-six percent felt that radio and television were the best modes for dissemination of information about museum programs to the handicapped public. Organizations of the physically handicapped were also considered a good medium for the dissemination of information by 56 percent of respondents. Other means considered less effective, although still useful, were rehabilitation agencies, libraries for the handicapped, and newspapers.

Only 9 percent of those surveyed had ever participated in special museum programs offered outside a museum. However, 70 percent displayed an interest in such programs.

Part II

Inaccessibility was the primary reason given for not attending museums, as cited by 45 percent of respondents. One-third of the respondents stated that they had never gotten around to visiting a museum. Other factors which mitigated against museum tours were lack of transportation, need of an aide, and expense. Virtually all respondents

(92 percent) who had not visited a museum indicated that if museums were made accessible, they would visit.

Part III

Sixty-nine percent of respondents noted that they had attended museums as adults. The remaining 30 percent had visited museums either as elementary or junior/senior high school students.

Physically handicapped persons generally expressed pleasure with their visits to museums, stating that they were educational and enhanced their cultural awareness. Only 5 percent were dissatisfied, stemming from a lack of accessibility. On the other hand, 19 percent expressed dissatisfaction concerning museum guides, while 77 percent thought the guides had been helpful.

Visitors most often toured the museum with family or friends, without a guide. Twenty-three percent toured with the general public; another 23 percent toured independently.

Items listed as being most often available to aid the handicapped were ramps (52 percent) and elevators (60 percent). Also noted as being reasonably available were wheelchairs, special parking, accessible bathrooms, and accessible cafeterias.

Survey of Blind Persons

Part I

There were 118 respondents to the survey tailored for blind persons. Sixty-three percent of the respondents stated that they had visited a museum since losing their sight. Half said they preferred to visit a museum with family or friends; their second choice was to visit with other blind or partially sighted persons.

When asked what staff museums should provide to meet the needs of blind visitors, 67 percent recommended that museums train their current staff. The items which respondents said were most responsive to their needs were museum literature in braille, on tape, or in large type, followed by cassette tours and scale models of exhibits. Of least importance to blind people were raised line drawings of the museum facilities, braille labels on exhibits, and raised line drawings of the exhibits themselves. A few respondents suggested the use of touchable exhibits, large print labels, braille maps, and raised printed letters. Half of the respondents favored tapes for museum literature, 37 percent suggested braille, and 22 percent preferred large print.

Regarding the funding of museum programs for the handicapped, 69 percent thought that such programs should be funded as part of the museum's normal budget. Funding through admission charges and through private donations, as opposed to funding through the budget, received approximately equal approval. The majority of respondents felt that if admission were charged to the general public, blind persons should also pay full fee. Twenty-five percent felt that they should pay only half price and 14 percent preferred free admission. Those blind persons not employed or older expressed a distinct preference for free admission.

Radio and television were favored as methods of making blind persons aware of special museum programs. Other popular means of advertising such programs were through organizations of the blind, libraries for the blind and physically handicapped people, and rehabilitation agencies—in that order.

Of the 118 responding to the questionnaire, 85 percent stated they had never participated in a museum program that was offered outside a museum, but 58 percent of this group expressed an interest in such programs. A high percentage (41 percent) of respondents showed no interest in such programs.

Part II

The blind people surveyed generally expressed little interest in museums. Nearly half (47 percent) stated that "they never got around to visiting a museum." Nineteen percent noted that they had no transportation to museums.

Part III

Most of those blind persons responding to the survey said they either visited museums with much frequency or very little. Thirty-five percent stated that they had visited museums one to three times and 38 percent had attended eight or more times. Also, most of those who had visited a museum since losing their sight did so in adulthood (58 percent). Twenty-four percent visited when they were high school students, and 18 percent when they were in elementary school.

In spite of many expressed frustrations (primarily the lack of touchable exhibits, exhibits which were inaccessible, and guides unfamiliar with the needs of the blind), 82 percent of blind persons surveyed still thought that their visits had been worthwhile. More than half of those responding were satisfied with the assistance that guides offered. Those who were most dissatisfied with the guides were younger—in the 21 to 36 age bracket. There were some complaints regarding guides who were not explicit enough (i.e., not articulate in visualizing concepts), guides unfamiliar with the needs of the blind person, and simply too few guides.

Half of those persons who responded visited a museum with family and friends, 33 percent participated with other blind persons, and 22 mingled with the general public. Blind people infrequently toured unescorted.

The facilities most often available to assist the blind were scale models of exhibits, cassette tours, and literature offered in braille. Less than 25 percent indicated they had not encountered such specific aids.

Consumer Survey of Deaf Persons

Part I

There were 336 respondents to the survey tailored for deaf persons. Eighty-nine percent of the respondents stated that they had visited a museum since becoming deaf, and nearly half expressed a preference for visiting with either family or other deaf visitors. Respondents over age fifty expressed little desire to visit museums along with the general public.

Forty percent of those responding thought museums should have special staff trained to accommodate the specific needs of handicapped visitors. Thirty-eight percent thought the regular staff should receive special training. By far, the service deemed most important to the needs of deaf persons was guides well versed in sign language. The item ranked second was exhibit labels, and captions was third in importance. Least interest was expressed in having teletypewriters (TTY's). in the museums.

Most respondents did not list any additional aids they would like to have, but when they did, the item most often requested was printed information describing the museum and/or exhibits.

The source of funding for museum programs for handicapped persons most often suggested (64 percent) was appropriations in museum budgets. Also suggested by 25 percent was funds obtained through admission charges. Ninety percent of those surveyed thought that handicapped visitors should pay an admission fee, and 60 percent felt that it should be a full fee, contingent upon the adequacy of services for the handicapped visitor.

The principal mode suggested for disseminating information about museum programs for deaf persons was organizations for the deaf. About half of the respondents suggested magazines, newspapers, and other periodicals. Forty percent elected schools and colleges as information disseminators, and 34 percent opted for television.

The inquiry regarding museum programs delivered at homes, schools, churches, clubs, and other organizations provoked a response from 89 percent stating that they had never had any such programs brought to them. Of these, 78 percent said that they would be interested in such programs.

Part II

Forty-one percent of respondents who had not attended a museum since becoming deaf indicated that the principal reason was that there were no programs for deaf visitors in the museums. Another 16 percent stated that they were not aware of any museums in their area. Another 22 percent replied that they never got around to it. When asked what would encourage them to attend museums, there was little response from those who had not visited a museum since becoming deaf. Ten percent did indicate that if guided tours using sign language were offered they would attend.

Part III

When asked how many times they had visited a museum, almost half stated eight or more times. Of those who had attended, 85 percent went as adults. Almost all respondents thought that at least one of their trips to a museum had been a worthwhile experience and historically educational. However, 19 percent felt their visit(s) had not been gratifying because of a lack of interpreters, confusing exhibits, and inappropriate facilities. Eighty-two percent thought that at one time or another, museum guides had not been helpful, although 26 percent who claimed that guides had not been helpful had never sought the assistance of a guide. Principal complaints were the lack of sign language knowledge by guides and general lack of training, as well as the absence of guides altogether.

Over half of those deaf persons who responded to the survey preferred to tour with family or friends. Only 4 percent preferred touring privately with a museum guide.

The item respondents found most prevalent in museums to respond to their needs was exhibit labels (85 percent). Only 11 percent indicated that the museums they had attended had guides trained in sign language.

III: Guidelines

Guidelines for Museum Programs for Physically Handicapped Students

For the purpose of these guidelines, a physically handicapped person is considered to be one with inhibited mobility which might restrict the opportunity for total participation in the community. This includes individuals having impairments caused by congenital anomaly (i.e., musculo-skeletal-sensory-cognitive), impairments caused by illness (i.e., poliomyelitis, arthritis, muscular dystrophy), and impairments caused by accident (i.e., amputation or spinal cord injuries).

These guidelines focus on the needs of people experiencing impaired mobility. However, it is important to recognize that people with mobility impairments are not the only ones who can benefit from accessibility for those with handicaps. Arrangements which assist people with mobility impairments also assist those with heart conditions and stroke, those with back problems, elderly people, children, women who are pregnant, adults with packages or children in tow, and those who are temporarily disabled due to accident or illness.

Therefore, what is really being asked of museums is that they open themselves to all people by making adaptations which will provide maximum enjoyment for the greatest number of people. If the following guidelines are utilized, participation by all people will be assured.

Training Regular Staff to Work with Handicapped Students

Most of the consumers who responded to the museum survey felt that museums should train their regular staff to work with handicapped persons. Acceptable alternatives were specially trained staff or volun-

A mirror mounted on the arm of a wheelchair allows a person with limited mobility to see exhibits mounted overhead.

teers. Training of regular staff members, however, is preferred and is consistent with the desire of students with mobility impairments to be part of society whenever possible. Use of special staff or volunteers may be seen as containing an element of segregation.

The assistance that a young person with a physical handicap needs depends on the existing accessibility of the facility and the specific handicap. A staff person should certainly know the rudiments of assisting, such as how a wheelchair is folded to be placed in a car, and how to maneuver it over a doorsill, up and down stairs, and over steps or curbs. A person who helps an ambulatory but disabled visitor using crutches or a cane should be trained to provide assistance going up steps or a ramp. A person with limited use of hands or arms may need assistance in opening doors or operating elevators. Little staff training would be required to give such aid.

The problems encountered by museum visitors in wheelchairs can be more easily appreciated if an effort is made to experience the museum from their perspective. Exhibit designers might tour the exhibits in a wheelchair to determine if objects, descriptive labels, charts, and models can be viewed from that level with ease.

A wheelchair tour might be included as part of a training program for volunteers or staff working with the disabled. A psychological orientation to disability should be a major emphasis in training. It is important that staff people understand what being disabled means, as well as when to offer assistance. The best people to train staff members are disabled students and adults, who can not only explain when and how to assist but can give specific suggestions for making exhibits more accessible.

If disabled youngsters are involved in training programs, they will be aware of what should be emphasized. However, there are several topics which should receive special emphasis in any training program.

1. *Dealing with Curiosity.* Although it may be necessary to ask certain questions to ascertain the limitations of a physically handicapped person, the person's privacy should not be invaded. It may be interesting to learn about the nature or history of a person's disability, but it may also be inconsiderate to ask direct questions. The tour guide should state that anyone who needs assistance should ask for it.

2. *Understanding the Need for Independence.* Any training program should include a brief orientation on the growth of consumer participation in society. Recently, disabled people have become their own best representatives. This action is based on the belief that they should determine their own needs, rather than depend upon a charitable organization to represent them. This new independence will be reflected in what handicapped students ask of museums. They will expect to be a part of the solution to problems, and they will not wish to participate in programs and functions which do not allow them maximum independence. It will help if museum personnel understand the desire of the disabled for independence.

3. *Equal Participation.* If a person with a physical handicap requires assistance to tour a museum independently or as part of a group, the staff should provide an opportunity for complete participation. For instance, the person explaining an exhibit should always stand facing the audience. This not only makes it easier to be understood, but is friendlier than standing behind the visitors. A disabled student who is part of a regular tour group should be permitted to come to the front of the group so that full enjoyment can be assured. The pace of the group should also be adapted to those who have disabilities so they are not inadvertently left behind. (This is a necessary consideration when handicapped students provide their own mobility.) The opportunity for shared experiences and equal participation is important to stress in staff training.

4. *Awareness of Problems.* The difficulties that will be encountered by students with mobility impairments during a museum visit should be as fully understood as possible by the staff in training. As noted earlier, such understanding may require touring the museum in a

wheelchair, or viewing films which demonstrate how mobility impaired students manage their daily lives.

Movies, slide presentations, and informative booklets which can be distributed to staff are available at little or no cost from *The President's Committee on Employment of the Handicapped, Washington, D.C. 20210*, as well as from the *National Easter Seal Society, 2023 West Ogden Avenue, Chicago, Illinois 60612*. Local organizations of the physically handicapped can be located by contacting *The President's Committee on Employment of the Handicapped* or the *American Coalition of Citizens with Disabilities, 1346 Connecticut Avenue N.W., Washington, D.C. 20036*. These organizations will be happy to provide guidelines for training, as well as participate in the training itself.

Museum Accessibility

Museum accessibility and usability is not the same for those with mobility impairments as it is for those who are deaf or blind. A physical handicap is a mobility impairment which limits a person's opportunity to see or hear what is being presented *because of inaccessibility to the area of activity*. Obstructions which hamper mobility keep a youngster with a physical handicap from full enjoyment of the surroundings. These obstructions are called architectural and transportation barriers. When they are eliminated, the structure is called a "barrier free design." Museums serving people with physical handicaps must incorporate barrier free design whenever possible. Such design is required by law for buildings which have been constructed since 1973 using federal funds; it also applies to all major renovations of older buildings. Even historical buildings can be altered to some extent, although there are often limitations because of the need to preserve the authenticity of the structure.

There are a number of standards of accessibility and usability which should be included in designing a barrier free museum and in altering existing structures.

1. *Ramps.* An alternative to stairs must be provided for a museum to be accessible to persons in wheelchairs and those with heart problems or other kinds of handicaps. Ramps with railings are necessary whenever steps inhibit movement and must meet the specifications of the American National Standards Institute (ANSI). These specifications are important because a ramp that is too steep or has a tip or a drop off is just as unusable as stairs for those with impaired mobility.

The location of ramps is equally important. Students who have physical handicaps must not be treated as "back door citizens." Therefore, ramps must be provided at front entrances to buildings and to exhibit areas. Disabled persons should not have to take circuitous routes to reach their destination.

2. *Wide Door Frames.* Most wheelchairs are approximately 26½ inches wide, although some may be as wide as 30 inches. Door frames must be made wide enough to accommodate their size. This applies not only to building and exhibit entrances, but also to restrooms and their stalls. Auditorium and gallery aisles, walk-through exhibits, telephones, and concession areas (including cafeteria lines) must also be wide enough for wheelchair access.

3. *Curb Cuts.* A curb is just as insurmountable to a person in a wheelchair as a flight of steps. The most effective remedy to this problem is curb cuts, which are miniature ramps placed somewhat to the side of sidewalks at intersections. A ramp should be placed wherever there is pedestrian traffic, and its slope should be smooth and gradual. Museums which are located in the middle of a block are not exempt from seeing that curb cuts are provided. *A Blueprint for Curb Cuts* may be obtained without cost from the *Architectural and Transportation Barriers Compliance Board, Washington, D.C. 20201.* This publication provides specifications on placement, gradation, and texturing of curb cuts.

4. *Elevators.* Whenever a museum exhibit area occupies more than one level of the building, elevators are required. Escalators cannot perform as substitutes. A freight elevator is an acceptable alternative for mobility impaired people as long as it can be operated without assistance and requires no special permission. (An elevator requiring a special key or permission for operation can mean long and distressing delay.) If a freight elevator must be used, braille should indicate floor levels.

Elevators to be used by students with handicaps should have operation buttons and emergency phones low enough to be reached easily from a wheelchair. They should be located in main traffic areas and clearly marked for use by those having physical handicaps.

5. *Accessible Restrooms.* All museums must have accessible restrooms, preferably several located throughout the building. Museum literature should note their location, and guides should be aware of their location as well. An accessibility symbol[1] should be readily identifiable and seen easily. (Adhesive decals are available from *Seton Nameplate Corporation, 592 Boulevard, New Haven, Connecticut, 06505, 203/772–2520.*) An accessible restroom stall is one that is thirty inches wide, four feet deep (from toilet to door), and has a curtain or door that opens outward. Grab bars should be located on each side of

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[1] An international symbol denoting access to disabled people.

the toilet, and both toilet paper and flushing mechanism should be within easy reach for those with handicaps. The American National Standards Institute (ANSI) provides specifications for such placement. Sinks, machines, towel racks, and mirrors must also be low enough to be used by those in wheelchairs. Knobs on machines and faucets should be large enough to facilitate use by those with limited manual dexterity.

6. *Telephones and Water Fountains.* There should be telephones and water fountains in all museums at a height for use by those in wheelchairs. The location of water fountains and telephones which can be used by those with mobility impairments should be known by all museum personnel and should be noted in museum literature. Standards for installation are provided by ANSI.

7. *Wheelchairs and Armchairs.* Wheelchairs should be available within a museum for people who are ambulatory but have mobility impairments, as well as for those with other conditions which impair their mobility, such as cardio-pulmonary problems. Chairs or benches in rest areas should include one or two chairs with arms that extend to the front of the chair to facilitate seating and rising for those having limited arm strength or wearing leg braces. Such chairs should be placed in exhibit areas as well for those who tire easily.

8. *Auditoriums and Galleries.* Auditoriums and galleries should provide space for at least one or two wheelchairs at the front of and on one side of the room. Aisleways must be wide enough and sloped gradually to allow wheelchairs to be maneuvered easily.

9. *Exhibit and Special Feature Areas.* Exhibits and special features must be designed carefully to permit access by persons in wheelchairs or persons short in stature. The best viewing height for a sitting child is from thirty-six to forty inches from the floor. If an exhibit is higher than that, mirrors must be installed to facilitate viewing. Since some physically disabled persons have limited head movement, specially designed clamp-on mirrors for wheelchairs should be available for them.

Exhibits offering viewer operation should have controls in an appropriate position. Controls should be placed so that they are unobstructed by other elements of the exhibit, and buttons, switches, or levers should be installed because they are the most usable for those with limited hand use. When knobs are employed, they should be large enough in circumference to be manipulated by those with limited use of their hands. If an exhibit is operated by a foot control, an alternative hand control should be provided.

In summary, accessible design is undoubtedly the most important need for visitors with physical handicaps. However, total accessibility is not always possible, and in these cases, some workable alternative must be employed. When it is not possible for a student with a handicap to physically enter an exhibit area, a model should be provided. Models could also be used by those who are visually impaired. Slide shows and/or movies may also provide some concept of exhibits which are inaccessible. However, it should be recognized that such alternatives are only partial substitutes and do not provide ultimate satisfaction.

Finally, no matter how many special features a museum has to help those who have handicaps enjoy their visit, little is achieved if such programs and aids are not publicized. The museum should provide accessibility symbols, maps, and locator boards. Unless the museum provides information about its offerings, those who could benefit and respond will not.

Parking Spaces for Physically Handicapped Visitors

Too often, public transportation cannot be used by those with physical handicaps, so they must use privately owned, specially equipped cars to reach community resources. If parking is not provided for such persons, they cannot participate in otherwise available museum activities.

Whenever parking is provided for museum visitors, special spaces should be available to those with disabilities. In the event that parking is not available for visitors, spaces should still be available for those with mobility problems, even if they must be in an employee parking lot.

The number of special parking spaces set aside depends upon the size of the museum and the total number of parking spaces available. Two may be sufficient, with an allowance for more if the number of handicapped visitors increases.

Three criteria should be used in providing parking places:

1. *They should be located near an accessible entranceway.* It is important that parking is available near a usable entrance. Rough terrain and roadways that are not level make it difficult for even a strong person in a wheelchair to navigate. Persons with limited strength in their arms, or persons who are ambulatory but have limited use of their legs or are able to walk only short distances, must be able to park near the entranceway. Additionally, having to compete with moving cars in the parking area can be dangerous.

2. *Parking places should be clearly marked.* Parking places should be marked with the accessibility symbol and labeled "Handicapped Parking Only." Signs for use in labeling parking areas can be purchased from the Seton Nameplate Corporation. If the lot is a large one, a sign at its entrance should identify the location of parking spaces for

handicapped visitors, stating that "Parking for Handicapped is Available by Main Entrance." If there are parking attendants, they should be able to direct handicapped persons to the special parking spaces.

3. *Extra wide parking spaces are required.* In order for a person who uses a wheelchair to get the chair in and out of a car, it is necessary to open the car door all the way. Regular parking spaces usually do not allow enough room to do this. Therefore, parking spaces for wheelchair users should be wider than normal. Placing parking spaces for handicapped visitors at the end of a parking row is often an effective solution to the problem, as long as the distance to the entrance is not far.

Handrails on Museum Steps and Ramps

Any ramp or flight of steps (more than two steps) in the museum area should have a handrail. This railing acts as a guard rail and provides the ambulatory disabled visitor with balance and leverage with which to navigate steps or go up and down an incline. The railing should extend beyond the ramp or steps for a short distance for maximum safety. Many ambulatory disabled people lean forward when negotiating steps or ramps and can easily lose their balance if the handrail ends abruptly.

Care should be taken so that railings do not become slippery if moist, or if the user is wearing gloves. A slippery surface can be avoided through the use of special materials or a rubberized finish.

Regular Museum Programs for the Handicapped

In most instances, people with disabilities object to segregated programs. Displays, exhibits, museum trails, and programs that are available to the general public should also be available to people with handicaps. Special adaptations for the assistance of people with physical handicaps are useful and enjoyable for everyone.

Occasionally, it will be necessary to offer special tours to accommodate a group of severely disabled students or visitors from a rehabilitation facility. A special tour is usually preferable when a large group of people with physical handicaps are touring together. Museums should be prepared to handle such tours when advance arrangements are made. They should not be the norm, however. Persons with handicaps must not feel that the only time they can visit a museum is with a special tour.

Special tours benefit the museum, not the person with a handicap. Most disabled persons who require special care will visit a museum with an attendant and therefore can tour without additional help from museum staff. If a disabled person does not have an attendant, it is because he or she can manage with little or no help. A museum must not require a person with a handicap to have an attendant; disabled people know their own limitations and provide for them.

Museum personnel might be alerted to the possibility that some individuals who have convulsive disorders might have an epileptic seizure when they are going through the exhibits. Special care should be taken when such viewers go to an exhibit that has any kind of flashing lights, because the "photic driving" which occurs with flashing lights tends to trigger a convulsive episode in some individuals.

Special programs offered outside the museum for the public should meet the same standards as those offered within. They should not be held in inaccessible buildings or vans. The programs should be designed so that both handicapped students and those who are able-bodied can enjoy exhibits together. These special outside programs can be of great benefit to those who find it difficult to travel to the museum. Some disabled people find transportation a problem; exhibits brought to their area would allow them to participate. The exhibit should be well publicized in advance to ensure maximum participation.

One area of special programming that museums should consider is traveling exhibits for rehabilitation centers or hospitals, and veterans hospitals specializing in rehabilitation. Rehabilitation centers are always searching for programs that provide educational leisure activity for patients. During the week, treatment and training is extensive, but evenings and weekends often have voids which need to be filled.

More importantly, patients in rehabilitation facilities will not be patients for long. They are being trained to be independent and usually stay only a few months. It is also possible that a rehabilitation center will want to arrange a special tour for the patients while still in rehabilitation to acquaint them with what they can find at the museum.

Publicizing Museum Programs for Handicapped

The best way to publicize accessibility and usability of a museum to students with mobility impairments is radio and television. It is not necessary to have special ads for those with handicaps. Rather, all ads for museum programs can note that persons with handicaps are welcome and accommodations are available for their use.

A simple way to get the message across in a television advertisement is to include a person in a wheelchair among the people visiting the museum. This emphasizes that the disabled person is included and points out to nonhandicapped viewers that the disabled person is no different than anyone else, but is an accepted member of the general public.

All people with handicaps who were surveyed for this study indicated that it would help if museums provided information about usability to consumer organizations. Many handicapped people are affiliated with such groups and receive information from them. The museum should provide such groups with specific information that is not given in general ads, including details about exactly what is (and is not) available.

This information can be contained in a reproducible letter or brochure. Initially, the museum should contact consumer groups to find out how many copies they would like; additional copies can be provided upon request. The brochure should include maps and pictures to illustrate written copy.

The copy should explain where accessibility features are located, such as ramps, curb cuts, elevators, restrooms, parking places, and accessible entrances. If there is no usable restroom or special parking, this should be stated. If an exhibit is not totally accessible, this should also be mentioned, with an explanation of why, and what is available as an alternative.

In order to make the material as informative as possible, it is best to have someone who is disabled help prepare the material. In this way, the museum can be sure it will contain what students with disabilities need to know about usability and accessibility.

Whatever material the museum produces or publishes should include a note about the museum's services for people with handicaps and a telephone number to call for additional information. Once again, such information in a general presentation not only serves students with mobility impairments but also helps museums determine what should be publicized and how.

Summary

When surveyed, only a little more than half (56 percent) of the physically handicapped respondents said they had visited a museum since becoming disabled. However, they also indicated that the major reason was lack of accessibility. Fully 92 percent who had not visited a museum indicated that if museums were accessible, they would visit them. This means that museums have a great obligation to open their programs to all people and to meet the needs of the handicapped as swiftly and completely as possible.

One source estimates that there are more than forty million persons with disabilities—one out of every five people—in the United States,[2] and many of these people are prevented from participation solely because of a lack of barrier free design.

While museums are responsible for adapting their facilities to serve all people, it is not a job that should be attempted without help and advice. Many organizations have been established to provide all the information and guidance necessary. These organizations can help a museum determine what can and should be done, and how to do it. They will provide information about cost and funding, and most will offer these services free of charge.

These resources are found within four categories: government agencies, organizations serving the disabled, architectural organizations, and organizations on the arts. The following resource list, for the most part, consists of national organizations. However, these national organizations can assist in contacting local groups and people who can provide help in training staff, making facilities and programs usable, and publicizing what has been done. Their services include staff, literature, audio-visual aids, technical guidelines, and information about conferences and exhibits.[3]

Government Agencies

Architectural & Transportation Barriers Compliance Board
Washington, D.C. 20201
(standards for accessibility, architectural resource people, audio-visual literature)

The President's Committee on Employment of the Handicapped
Recreation and Leisure Committee
Washington, D.C. 20210
(general resource people, literature on accessibility and training, exhibits, and audio-visuals)

General Services Administration
7th and D Streets, S.W.
Washington, D.C. 20407
(ANSI standards, accessibility advice, literature)

Office of Education
Bureau of Education for the Handicapped
400 Maryland Avenue, S.W.,

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[2] Bureau of Statistics, U.S. Department of Labor.

[3] A brief description of services follows each reference.

Washington, D.C. 20202
(funding and program information)

Organizations Serving the Disabled

National Easter Seal Society
2023 West Ogden Avenue
Chicago, Illinois 60612
(literature, audio-visuals, resource people, accessibility information)

National Rehabilitation Association
1522 K Street, N.W.
Washington, D.C. 20005
(resource people, program information)

Closer Look
Box 1492
Washington, D.C. 20013
(accessibility and program information, resource people)

Rehabilitation Institute of Chicago
345 East Superior Street
Chicago, Illinois 60611
(resource people, literature, audio-visuals, program, training, and accessibility information)

Seton Nameplate Corporation
592 Boulevard
New Haven, Connecticut 06519
(signs for accessibility)

United Cerebral Palsy Associations, Inc.
66 East 34th Street
New York, New York 10016
(resource people, audio-visuals, literature, training, and access information)

Consultant Organizations for the Handicapped

National Committee of Arts for the Handicapped
1701 K Street, N.W., Suite 205
Washington, D.C. 20006
(technical and program assistance)

Smithsonian Institution Committee on the Handicapped
c/o Programs for the Handicapped, National Air and Space Museum
Smithsonian Institution
Washington, D.C. 20560
(funding, program design, community resources)

Hospital Audiences, Inc.
1540 Broadway
New York, New York 10036
(institutional programing)

Programs for Special Populations
Seattle Department of Parks and Recreation
100 Dexter Avenue North
Seattle, Washington 98109
(institutional programing)

Vocational Rehabilitation Administration, Division of Research and Training Grants
Department of Health, Education and Welfare
Washington, D.C. 20202
(funding program)

Rehabilitation Services Administration
330 C Street, S.W.
Washington, D.C. 20201
(resource people, exhibits literature, audio-visuals on programs and training)

Office of Handicapped Individuals
Department of Health, Education and Welfare
Washington, D.C. 20201
(program and funding literature, audio-visuals, resource people)

Department of Housing and Urban Development
Library Information Division
Washington, D.C. 20201
(architectural and design assistance)

Assistant Secretary of Commerce for Economic Development
Department of Commerce
Washington, D.C. 20230
("The Guide to Federal Programs," $8.00, has information on federal funding.)

Veterans Administration
Washington, D.C. 20420
(information on veterans programs and accessibility information)

Special attention must be given to the National Endowment for the Arts and Educational Facilities Laboratories. They have prepared an invaluable series of publications on "Arts and the Handicapped," including "An Issue of Access," "Technical Assistance," "Funding Sources," "Architectural Accessibility," and "We're Pleased That You

Are Interested in Making the Arts Accessible to Everyone." These are available from Arts, Box 2040, Grand Central Station, New York, New York 10017.

Organizations of the Handicapped

American Coalition of Citizens with Disabilities
1346 Connecticut Ave., N.W., Room 817
Washington, D.C. 20036
(training information, resource people, local contacts)

Paralyzed Veterans of America
7313 Wisconsin Avenue, N.W., Suite 301-W
Washington, D.C. 20014
(architectural information, local contacts, veterans programs)

Accent on Information
P.O. Box 700
Bloomington, Illinois 61701
(computerized information clearinghouse on all areas—fee charged according to size of request)

National Paraplegia Foundation
333 North Michigan Avenue
Chicago, Illinois 60601
(literature, audio-visuals, information on training and accessibility, local contacts)

Center for Independent Living
2539 Telegraph Avenue
Berkeley, California 94704
(resource people, local contacts, literature, architectural and training information)

National Association of the Physically Handicapped
76 Elm Street
London, Ohio 43140
(resource people, local contacts)

Congress of Organizations of the Physically Handicapped
7611 Oakland Avenue
Minneapolis, Minnesota 55423
(local contacts)

An interpreter for the deaf provides simultaneous signing for the deaf during an illustrated lecture at a museum.

Silent comments are exchanged by signing during a museum program for which an interpreter for the deaf is provided.

Guidelines for Museum Programs for Deaf Students

Definition of Population

When discussing the deaf population, people commonly refer to two separate groups—people who are deaf and those who are hard of hearing. They define those who are deaf as people who lipread or use sign language, while the hard of hearing are known to hear sounds but cannot always discriminate among them. For these guidelines, the definitions of the Office of Education, Department of Health, Education and Welfare, will be used:

> "Deaf" means a hearing impairment which is so severe that the child's hearing is non-functional for the purpose of educational performance. "Hard of hearing" means a hearing impairment, whether permanent or fluctuating, which adversely affects a child's educational performance, but which is not included under the definition of "deaf."

A useful attitude for a hearing person to employ when meeting or working with an individual who has a hearing impairment is to realize that the person is, first of all, a human being, with all the variability which that implies. It happens that this particular human being does not hear or does not have sufficient hearing to understand speech by sound alone. Thus, the deaf person may be brilliant or dull, short or tall, fat or thin, irritating or charming, reasonable or unreasonable; a group of deaf people is a group of unique individuals sharing, perhaps, only an inability to hear.

A critical aspect of deafness is the time at which it occurs. A child who is born deaf or loses the ability to hear before the age of three will have an extremely difficult time acquiring language skills. Children with normal hearing learn the language of their culture by hearing it in an environment which gives the sounds meaning. They also learn to control and use their own voice by hearing it and adjusting it to society's expectations and the demands of language. They learn to whisper, shout, and pitch the voice high or low without much formal teaching, usually from association with peers and adults.

Deaf persons are generally not born mute. They have voices but, because of their deafness, they never learn to use their own voices in the ways that hearing children do. An inability to hear and thus acquire language in a natural way means that a deaf child will typically lag behind his or her peers in English language ability. Reading and writing ability naturally will also be affected since the child has difficulty in establishing a solid language base, but these children often possess fluency in sign language.

Depending on availability of resources, a deaf child will receive an education based either on the oral method or on some kind of manual communication. In the former, children are taught lipreading and are given much practice in developing their own voice. Their receptive communication (understanding what people say to them) depends on their ability to read the speech of others, and their expressive communication (telling their thoughts to others) depends on their ability to use their voice well enough for others to understand. It also depends on their ability to write thoughts and questions. Usually, children who go to "oral schools" learn no sign language.

In schools which emphasize manual communication, a combination of sign language and finger spelling is used as the major form of communication. In the classroom, students and teachers may use a form of Signed English, which employs the verb tenses and other structures of the English language. Or they may use American Sign Language (Ameslan) which has its own structures and forms, quite different from English. Even in schools where Signed English is used in the classroom, Ameslan is generally the common form of communication in all other life situations. For a large proportion of the deaf population, English is not really their native language; it is a second language. Consequently, the ability of the deaf population to read and write English varies greatly.

Deafness generally results in a language handicap. The communication process of a deaf person is hampered by difficulties with either the reception of the English language, expression in the English language, or both. However, museum personnel should not equate language skills with intelligence.

Deaf people depend upon their vision for communication. This is true for all deaf people. They receive messages visually, either through lipreading or through reading manual communication. However, no matter how well the deaf individual's perception has been developed, there are limits to what he or she can perceive at any given moment. Unlike the hearing person who can look at an object or picture and hear an explanation about it at the same time, the deaf person cannot look at an object or picture while reading lips or sign language. Once eyes move from the lips or signs, communication has been lost.

Many deaf or hard of hearing individuals have lost their hearing after the age of three, or post-lingually. This group includes a large number of adults who through accident or disease have become deaf. Children who are post-lingually deaf may have better voices and, depending upon the age at which their deafness began, may or may not have a good language foundation. Deafened adults generally do not have problems with English or in using their voices (although there are frequently changes in tone and quality of the voice), but they may have problems with manual communication. This can manifest itself in difficulty with expressing ideas in sign language or in reading signs. Many are not able to read lips proficiently.

There are also children (and adults) who are both deaf and blind who must communicate through braille and finger spelling (spelling words into the hand of the blind individual). Other individuals with multi-handicaps including deafness have all the problems of deafness along with their other problems.

In summary, deaf students are individuals with a hearing loss so severe that it has adversely affected their educational performance. However, they have no loss of human qualities and have the same needs and feelings as others.

Museum Programming and the Needs of Deaf People

Many people experiencing deafness or some degree of hearing impairment prefer to visit museums with families and friends or to tour with a group of deaf persons. Others choose to tour museums independently. In either case, they want to share the offerings of the museum as fully as any other museum visitor, so they need information about the exhibits which will give their tours meaning and enjoyment. They also need to be able to ask questions and receive answers.

Since deaf people possess varying degrees of proficiency in the English language, all directions, written explanations, and descriptions of exhibits should be given in controlled language patterns so that their meaning is communicated to the greatest number of deaf visitors. Moreover, all visual displays of information should be extremely visible as well as readily accessible to those who are deaf for reading and rereading. Having an interpreter available who can communicate in either oral or sign methods would be most desirable. Good overall lighting in the museum is especially necessary for the deaf, because the message must be seen if it is to be received and understood. Deaf persons must also be able to see the face of the interpreter in order to read that person's lips. The interpreter's hands must also be seen so that sign language and finger spelling can be read. The provision of a guide to help a tour get started or to point out important displays and answer questions during the tour will give deaf people the feeling of being welcomed and belonging.

Finally, deaf people have the same basic needs as others. Many of their needs can be met in the process of satisfying the needs of the general public.

Training Museum Guides and Staff to Work with the Deaf

The training of museum staff or guides to work with groups of deaf visitors falls into two areas: creating an awareness of the communication problems of those who are deaf, and training staff to function within that awareness.

Several methods can be used to begin to create an awareness of the communication problems of deaf people:

1. Lectures/discussions about deafness by experts (including those who are deaf)
2. Readings concerning the communication problems of deaf people
3. Experiences with language problems, such as reading some of the written language of the deaf or listening to a tape of oral deaf language

To gain awareness of the world of deafness, staff should spend a day on the campus of a deaf school informally observing classes, walking with the students, sitting in the lounges, eating with them, and attempting communication.

If it is impossible to visit a deaf school, the museum, as an alternative, could contact a local organization of the deaf, explain what is needed, and solicit its cooperation in arranging for a group of deaf individuals to visit the museum. The staff and guides could tour with these persons and begin to practice the theory which they have learned.

Museums should recognize that all deaf persons are not served by the same type of interpreter. Some need an oral interpreter, and some a manual interpreter. It is therefore necessary to ascertain which type of interpreter is needed.

The training of guides, interpreters, and staff should emphasize that:

1. The deaf person depends on vision.

2. The interpreter or guide must be in a position to be seen by every deaf person in the group.

3. The interpreter or guide must always face the audience so that signs and lips can be read. The interpreter should never cover his or her mouth.

4. The group should be spoken to clearly and directly. Sometimes there may be persons in the group who have enough residual hearing so that between their ability to read lips and the clear, distinct speech of the guide, they are able to receive most of what is said.

5. Since the deaf cannot hear, the guide, interpreter, or staff person should not attempt to compensate by shouting, which may distort sounds. Instead, the interpreter should speak at a moderate rate, enunciate clearly, and not overmouth words.

6. A guide should always carry a pencil and paper for communication purposes. A profoundly deaf person may wish to communicate with paper and pencil. Guides may wish to do the same when they cannot otherwise make themselves understood.

7. When communicating or writing or in a lecture, the guide must remember that English language levels vary greatly among the deaf. The guide/staff person should use basic language, free of idiomatic expressions. A museum may provide literature written in basic language, but much is lost if the guide lectures in long, complex sentences.

8. A guide/staff person should always look directly at the person.

9. When a guide and interpreter are working together, the guide must be sensitive to the interpreter's needs. The guide should speak at a rate which is confortable for the interpreter. The interpreter should stand close enough and to the front of the guide, so the guide can judge how well the interpreter has synchronized. Whenever possible, the interpreter should be provided with written material which may help prior to the assignment. An interpreter using sign language should not have to interpret for more than one half hour at a time, since signing for a longer period tends to tire muscles and leads to errors and slowness.

10. Guides/staff persons should be aware that deaf persons have speech. However, it is sometimes difficult to understand. If no interpreter is available, the guide/staff person should ask the deaf person to write down a question or comment.

11. A deaf audience cannot look at an exhibit and an interpreter at the same time. A guide should first point out what the deaf group should focus their attention on. Then the explanation should be given so that the audience can concentrate on the interpreter. When the explanation is completed, deaf participants should have ample opportunity to look again at the exhibit.

12. When a deaf student asks a question about an exhibit, the question should be repeated by the interpreter for the group. The answer should be given to the entire group.

13. A flashing light is a signal to the deaf to pay attention. A guide could turn the light off and on at the wall switch to gain attention. If this is not feasible, using a flashlight in the same manner will be effective.

Making the Museum Accessible to the Deaf

For a museum to be fully accessible to deaf visitors, it will need to find alternative ways to provide information which is normally presented by voice.

According to the survey of 334 deaf consumers, the most important item in determining whether deaf persons visited museums was the availability of guides who could communicate in sign language. Deaf consumers also indicated that they thought museums should either have special staff to work with the handicapped or teach the entire staff to work with handicapped visitors. Less than ten percent of the respondents indicated they would tour a museum with the general public. From these responses, it would seem that having guides and staff who can communicate, and/or interpreters, would attract and serve more of the deaf population. If the community in which the museum is located has a sizable deaf population who use sign language, it may be possible for the museum to encourage some deaf individuals to work as guides. The museum also may find members of the staff who are interested and willing to take sign language training.

Many deaf persons wear hearing aids, and most cannot tolerate the noise generated by hundreds of people talking and milling around. They will therefore prefer to visit when there are fewer visitors. If there are certain hours during which attendance is lower, the museum should inform deaf organizations of them.

When handicapped individuals enter a museum, they should be able to find the information desk easily. Ideally, there would be an interpreter at this station from whom deaf individuals could obtain information about the museum and its offerings. It would be helpful in alerting deaf visitors to available accommodations if printed signs or other displays give instant information about interpreting services, special materials, and whatever else is available. When an interpreter is not available, a pencil and paper should be ready for use by both the deaf person and the person on duty at the desk. Maps, preferably coded to museum exhibits, brochures about the exhibits, and possibly a brochure which provides answers to typical questions asked by museum visitors should be distributed to deaf patrons. Since the language level of deaf people varies, all materials should be written in basic language. The addition of a videophone or a teletype (TTY) machine to the museum's public information office and information desk would provide a deaf person with a direct connection to the museum. Deaf persons could then call the museum themselves to obtain information about exhibits and special showings or to ask for special programs for their group.

In some instances, the museum may be able to add captions to a slide series, a film, or a video-tape so that deaf visitors can read the sounds of the presentation. Films or slides can be interpreted for the deaf if the interpreter stands in front of a spotlight immediately next to the film or slides. Slides must be shown slowly to allow the deaf viewer to see both signs and pictures. When captioning is not feasible, the museum may wish to give the deaf patron a copy of the narration or script of the film, slide, or video-tape displays. However, since it is not possible to read a script and look at a movie simultaneously, the museum should provide time for individuals to read such scripts before viewing the show. If audio cassette tours are available, some of the sets should be equipped so that persons with hearing aids can use their amplification. This would permit some deaf patrons to take independent tours.

Amplification devices located in the handset receivers of public telephones permit persons with hearing aids to use their amplification when speaking on the phone. The local telephone company will be very cooperative in this effort.

Usually, we think in terms of bringing the public to a museum, but a museum can become more accessible to the public by *taking* some of its exhibits to the people. A museum could design a mobile exhibit which could be taken to an area near a school for the deaf. The school population would be served first; then the exhibit could be opened to a variety of groups and, finally, to the general public. The museum could ask teachers at the school to serve as interpreters and could send materials to familiarize them with the exhibit. Such traveling mini-museums would not only serve schools but could make exhibits accessible to communities which are some distance from museums.

It would also be possible for a museum to make captioned films or video-tapes of various exhibits and provide them for a fee to groups, individuals, and schools. In this way, museum exhibits and offerings become more accessible to handicapped people.

Publicizing Museum Programs for the Deaf

A city or town large enough to support a museum probably has a substantial number of deaf citizens. The challenge is to make deaf citizens aware of a museum which offers services and exhibits that might be of interest.

One way to inform deaf citizens is to contact local associations of and for the deaf.[2] These clubs may be local chapters of the *National Association of the Deaf* or local social clubs. Such clubs can help identify leaders of the deaf community who could in turn help the museum reach the rest of the community. The clubs themselves can also be effective in publicizing museum programs and exhibits.

If there are no active associations of the deaf nearby, print can also be used effectively. Announcements, ads, posters, and informational brochures can be circulated in the community—to libraries, schools, recreation centers, stores in large shopping areas, churches, rehabilitation centers, hospitals, doctors' offices, and beauty parlors. The captioning or interpreting of museum announcements on television would also be helpful.

Probably the best advertisements of a museum's programs for the deaf are satisfied consumers. If a museum presents programs to a group of deaf persons and they feel satisfied with the way they have been treated and with what they have experienced, they will probably return and they will encourage their friends to visit also.

Programs, Materials, Equipment, and Services for Deaf Consumers

Generally, the same kind of museum programs and exhibits that are planned to interest and inform the general public will meet the needs of the deaf consumers. The deaf are as diverse as any group in our society, and it is impossible to narrowly define their interests. Deaf consumers have no wish to be excluded from anything.

However, deaf consumers are greatly interested in the achievements of the deaf. Consequently, exhibits related to their handicap, such as the development of hearing aids, the use of miniaturization in hearing aids, or the achievements of deaf persons would be of particular interest. If a deaf person or persons have contributed to whatever is on display, interest of deaf visitors will be heightened and communicated to other deaf individuals.

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[2] Resources which can help publicize activities of the museum to deaf communities are listed at the end of this chapter.

The presentation of an exhibit is the key to holding the deaf person's interest. Flashing overhead lights can help gain attention and shift the focus of attention. The actual content of any exhibit is likely to interest the deaf, provided it is well labeled and designed.

Museum educators might consider acquiring several pieces of equipment which could make presentations more meaningful for deaf visitors. The first is equipment which can produce substitutes for speech. For example, if a museum decides to caption slide films or video-tapes, typewriters are needed which can be equipped with a variety of type elements. Film editing equipment might also be considered. However, before a museum decides to do its own filming and captioning, the museum educator should consult the nearest public broadcasting station which does captioning or Dr. Malcom J. Norwood, Chief, Captioned Films & Telecommunications Branch, Bureau of Education for the Handicapped, Office of Education, Washington, D.C.

A museum may wish to consider filming a tour with a portapack TV camera. This requires video-tape, TV camera equipment, and a good cameraperson. Lighting also must be considered. These films could then be kept on file for use with visiting deaf groups. A video-tape recorder and a television monitor would be required for each exhibit where the tape was used. Mounting and security of this equipment would also have to be arranged.

If a museum decides to have interpreters for deaf groups, it should be careful to place interpreters where they will have maximum visibility. Factors which must be considered include lighting, whether to place the interpreter on a small platform, whether parts of exhibits are blocked, and safety of visitors. Also, visiting groups of deaf persons should be limited in size to ensure maximum comfort of all patrons and interpreters on the tour. This is especially true when dealing with crowds of young people. When a large group appears, it should be divided into smaller ones and use the services of more than one interpreter.

If a museum must rely on printed materials to communicate with deaf students, the materials should be easy to handle, the print easy to read, and the language simple, basic English. Wherever feasible, pictures should convey the message. Written captions explaining exhibits should be near the exhibits and easily seen. If there is a sequence for optimum viewing of the exhibits, that information should be given at the information desk, and all brochures, maps, and other guides should reflect that sequence. Braille labels and captions would be excellent for the growing number of deaf/blind visitors.

A teletypewriter (TTY) can be a great help in communicating with the deaf.

Resources to Help Museums Serve the Deaf

A museum should probably try to get help from deaf leaders in the community. The following agencies can help locate such leaders:

Gallaudet College Alumni Association
Gallaudet College
Kendall Green
Florida Avenue and 7th Street, N.E.
Washington, D.C. 20002

National Association of the Deaf
814 Thayer Avenue
Silver Spring, Maryland 20910

Alexander Graham Bell Association for the Deaf
3417 Volta Place, N.W.
Washington, D.C. 20007

One of the finest resources is the April issue of *American Annals of the Deaf*, published by the Convention of American Instructors of the Deaf. Each year, this issue is devoted to programs and services for the deaf in the United States. It is an excellent directory and can be purchased for a minimal sum from:

Convention of American Instructors of the Deaf
5034 Wisconsin Avenue, N.W.
Washington, D.C. 20016

For information concerning interpreting services, museums should contact the National Office of the Registry of Interpreters for the Deaf, which distributes its own directory of membership. Many states have their own chapters.

Registry of Interpreters for the Deaf
P.O. Box 1339
Washington, D.C. 20013

In addition to the above-mentioned resources, most communities have other resources such as:

- Residential and/or day school programs serving the educational needs of deaf children
- Community education and/or continuing education programs for the deaf, which are usually administered or sponsored by the public school system of the state residential school
- College or university teacher-training programs
- Church-related groups serving the deaf
- Public service programs (for further information, write to Public Service Programs, Gallaudet College, Kendall Green, Florida Avenue and 7th Street, N.E., Washington, D.C. 20002)

While every community may not have all of these resources, some would certainly be available to museum educators. The April issue of *American Annals of the Deaf* may give specific names and addresses.

For help with writing materials in basic language patterns, museums should contact:

Instructional Materials Research and Development Center
Office of Educational Technology
Dr. Donald V. Torr, Director
Gallaudet College, Hall Memorial Building
Florida Avenue and 7th Street, N.E.
Washington, D.C. 20002

Guidelines for Museum Programs for Blind Students

Definition of Population

The most common definition of blindness used in the United States is "visual acuity in the better eye with best correction which does not exceed 20/200 or a defect in the visual field so that the widest diameter of vision subtends an angle no greater than 20 degrees."[1]

The American Foundation for the Blind terms "blind" only those with a complete loss of sight; all other degrees are termed "visually impaired." Of this total group, about three out of ten are totally blind or have only light perception; others have varying amounts of vision. In 1970, there were 6.4 million blind or visually impaired people in the United States.[2]

The needs of a blind student in a museum are much the same as those of seeing children. All children have the desire to explore and learn about new areas, and therefore, a multisensory approach to museum programs is beneficial for all students. A variety of learning techniques enable students to more fully experience an exhibit; blind children benefit as much from such an exhibit as their sighted classmates. For example, although blind students cannot see a locomotive, it can be experienced by touching a model. Since blind children learn by using senses other than vision or use vision to a lesser degree than sighted persons, they can gain the same understanding when an exhibit is structured to include more than visual stimuli.

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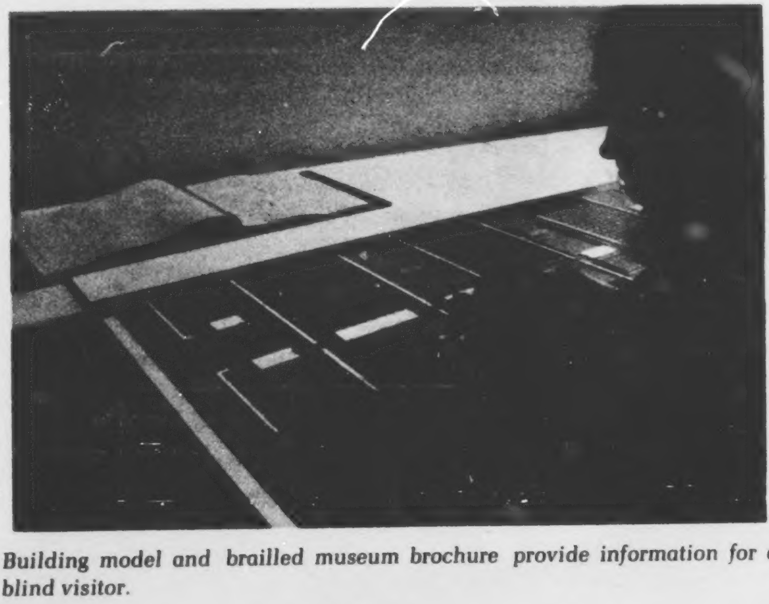
[1] Yasha Lisenco, *Art Not By Eye*, p. 10.

[2] Jacques Beechel, "Interpretation for Handicapped Persons," p. 36.

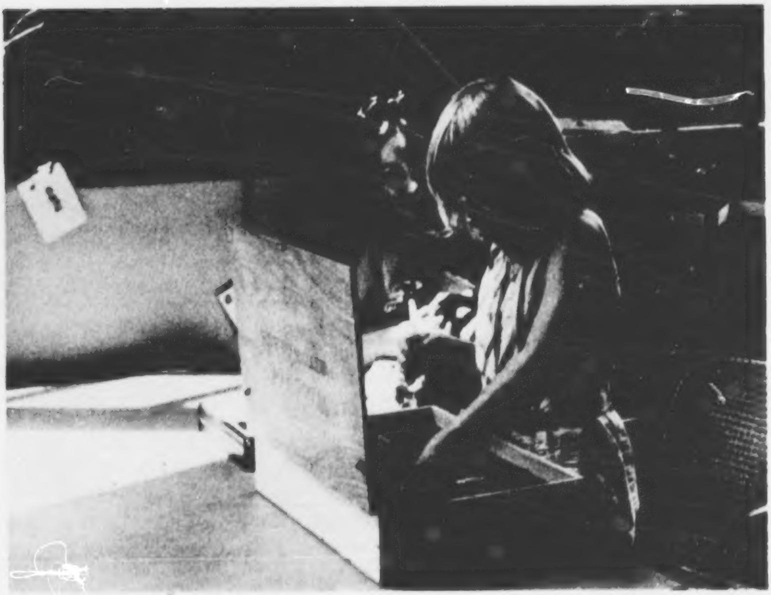
Accessibility and the Blind

To the blind population, accessibility has little to do with the removal of architectural barriers. An exception may be an overhanging or protruding obstacle which, because it is not floor-based, would not be indicated by a cane. If a blind individual enters a museum alone, personnel should assume, unless asked for assistance, that the student is able to travel through the museum alone. Blind students who are part of a school group will probably travel with a cane, accompanied by a fellow student or adult. If they have some usable vision, they may travel with the group unaided. Some adolescent students may travel with guide dogs.

A more important type of accessibility might be called learning accessibility. Exhibits are inaccessible to the blind if their means of presentation is solely visual. If a sculpture is behind ropes and there is no scale model or explanatory material, it is inaccessible to the blind vis-



Building model and brailled museum brochure provide information for a blind visitor.



Mother and daughter share an exploration of a collection of Indian projectile points. Information cards are in type and braille.

itor. This is not to imply that all items in museum collections must be touchable. However, every attempt should be made to develop alternative techniques of presenting artifacts so that blind students can experience them.

Another type of accessibility is attitudinal accessibility. Because they have traditionally presented their collections to be viewed without being touched, museums have furthered the misconception, to the blind and sighted alike, that blind individuals can gain little from visiting museums. In some instances, blind persons have been unwelcome in museums, based on the unfounded fear that they might inadvertently damage displays. In the past, museum staff have sometimes simply felt that the museum has nothing for the blind person to observe. Fortunately, this idea is changing. Due to society's increased awareness of handicapped individuals' desire for independence, museum personnel have begun to realize that the blind can enjoy visiting a museum. Museums contain a wealth of knowledge, and this knowledge should, to the greatest extent possible, be made available to the entire spectrum of society. Although every exhibit in every museum cannot be touched and handled, museums can make the knowledge contained in such exhibits available to the blind.

Training Museum Guides

Since most blind children are being mainstreamed into regular classroom settings, museums will most often encounter blind students visiting with regular school groups or with family or friends. In addition, some blind individuals, the same as sighted ones, enjoy visiting museums alone. Museums will encounter few tours exclusively for blind students, and therefore, it is not in the museum's best interest to train guides exclusively to offer tours to the blind. Staff and volunteers can be more useful if trained to give tours in which blind students may be present. Guides who have the training and ability to describe exhibits thoroughly and express themselves well are an asset on any tour, whether there is a blind person present or not. In addition, if the museum has any materials such as scale models, raised line drawings, or cassette or braille literature, guides should be aware of their existence, be familiar with them, and have ready access. Guides should also have a list of the items in a museum's collection which are touchable.

Training sessions for guides might include lectures by blind individuals, films about blindness, and frank discussions between trainees and lecturers. These discussions allow guides to ask any questions and express any apprehensions they might have concerning blindness or blind individuals. If these apprehensions are not dispelled during training sessions, they may appear when the guide is working with the blind museum visitor. During these sessions, guides should also learn techniques such as how to walk with a blind person—for example, permitting the blind student to take the guide's arm, rather than the guide leading by the hand or arm. Above all, guides should understand that the blind visitor is simply a person who does not see.

Programs and Exhibits

Museums whose presentations include audio-visual displays are to be commended. Such displays are extremely beneficial to the blind student as well as those with sight. There is a common misconception that if a person cannot benefit from the visual portion of the display, the audio portion also has little meaning. In most instances, the blind person can gain a great deal from the audio portion of the presentation. When it is accompanied by some explanation from a companion or guide, the learning experience is equal to that of sighted peers.

Materials and Equipment

To implement programs, supplement exhibits, and give them more meaning for blind students, museums may wish to use various alternative methods of presentation. In this section, some of these techniques will be discussed along with the materials and equipment needed to implement them.

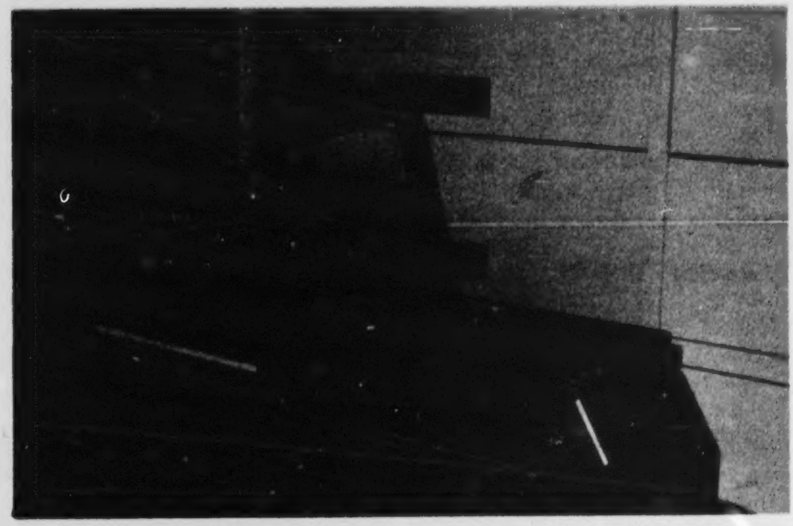
Thermoform Drawing. Objects which are behind ropes or glass, or are too large for the blind student to conceptualize, may be represented by this type of drawing. It consists of a two-dimensional representation of a three-dimensional object. If funds are limited, however, the museum should keep in mind that such drawings are less effective than touchable objects and scale models. Many blind students have not grasped the concept of spacial relationships needed to interpret a three-dimensional object reproduced on a two-dimensional page. Yet for some students, especially those who have had vision at some point in their lives, these drawings are useful.

To make a thermoform drawing, a representation of an object is made from wood, wire, or some other non-flammable, non-meltable material. This is then glued to a sheet of heavy paper. The image must stand no more than one quarter inch off the page. The "master" is then duplicated on a thermoform machine.

Thermoform Machine. This is a machine which, through heat and vacuum, reproduces braille from a master copy onto plastic sheets. It is also used to duplicate thermoform drawings. (The list of resources at the end of this chapter contains information on where to obtain thermoform machines and plastic sheets.)

Cassette Tours. A cassette tour consists of a reading on cassette of the labels in a particular gallery or throughout the entire museum. Labels should be read in the order of their appearance. Except for an orientation point at the beginning of the exhibit and an indication of when the tour has been completed, it is not necessary to provide directional information on a cassette tour for blind students. Blind persons have various techniques for traveling, and exhibit information interspersed with directional cues can become confusing. Such cues would not, for example, be the same for a person using a guide dog and for one using a cane. Cassette tours can be equally valuable to a blind student traveling alone and one with a tour. Multiple tapes of the same tour can be produced with the use of a cassette duplicator. A variety of models are available commercially.

Scale Models. Where exhibits are behind glass or ropes, or where their fragility precludes touching, scale models provide the blind student with a good interpretation of the artifact. Scale models can be made to represent most objects in a museum's collection. Many commercial manufacturers produce these models. In addition, museum shops often sell replicas of some of the items on exhibit. These make worthwhile additions to a museum's collection of models.



A thermoform machine can be used to reproduce both brailled information and raised drawings of exhibit objects.

Literature. Literature concerning the museum and its programs which is provided to the general public should also be provided in braille, on cassette, and in large type. If more than 100 copies in braille are desired, it is to the museum's advantage to engage one of the braille printing houses (see list of resources). If, on the other hand, a museum desires to produce only a small number of copies, it is more economical to produce a braille master of the literature on a braillewriter and duplicate the desired number of copies on a thermoform machine.

Braillewriter. This machine, through various combinations of depressed keys, embosses braille characters. The machine produces only single copies.

Large-Type Literature. Literature in large type can be produced on a typewriter which has large type. Various models are commercially available. This typewriter has a standard keyboard and operates in the same way as a conventional typewriter. It produces 18 point characters, approximately one quarter inch in height. Material typed on this machine can be duplicated by any means used for duplication of standard printed material.

If literature is provided free to the general public, it should be provided free to blind visitors as well. If there is a charge for regular printed material, the same charge should be applied to other media.

Raised line drawings of exhibits reproduced by thermoform give blind visitors additional information.

Literature in braille, on tape, or in large type can be produced at roughly the same cost as standard printed matter.

Labeling of Exhibits. Exhibit labels can be made accessible to the blind and partially sighted by producing them on cassette or, where possible, by reproducing the label in braille and placing it near the printed label. If these labels receive heavy use, they will have to be replaced frequently unless they are permanently embossed on metal or plastic plates and attached to the exhibit. Whether because of curiosity, mischief, or "something to do," members of the general public (seeing and non-seeing) have a tendency to remove these labels if they are not permanently attached. Many museum visitors who have some usable vision cannot read regular exhibit labels because of their size. This is also a problem for many elderly people. All labels would be more effective if they were produced in 90 point type.

While considering the task of labeling exhibits, museum personnel may also wish to think about labeling elevators. Elevator panels can be labeled with braille or raised print numbers. The door jamb on the outside of the elevator should also be marked on each floor to indicate where the elevator has stopped.

How to Publicize Exhibits and Programs

Museums interested in making their exhibits available to the blind may wish to contact consumer organizations of blind individuals. These organizations can provide suggestions for exhibits and inform their members of availability. One such organization is the National Federation of the Blind, which has local chapters in many cities and towns in the United States.

The Division for the Blind and Physically Handicapped of the Library of Congress has a network of regional libraries for the blind and physically handicapped across the country. These libraries are good places to publicize local museum programs, since many of them send newsletters to their members.

A growing number of cities are establishing closed circuit radio reading services for the blind. These radio services read a variety of books and publications over the air which are not available in braille or on tape. They also provide public service information of interest to their listeners.

Museums may also wish to notify special education departments of local public schools about programs of interest to teachers and students. Special education teachers might also be called upon to provide suggestions and comments on proposed exhibits.

Once programs have been established, news about museums will travel by word of mouth. Blind people who feel that a museum visit has been worthwhile will tell their friends.

Summary

Our society is beginning to understand that blind people are individuals first and blind second. Museum educators, too, are becoming aware that this segment of society has been neglected in the planning of museum programs. While many museums are faced with limited funds and cannot purchase all the equipment and materials discussed here, wherever possible, they must make programs and exhibits available to the blind population. This does not mean that museums should establish separate programs for blind persons, which only perpetuates segregation. Rather, museums must recognize that the blind community is a part of society which cannot rely on vision to function adequately in society. But they can and do function and are entitled to whatever aids will assist their mobility.

Resources to Help Museums Serve the Blind

American Foundation for the Blind
15 West 16th Street
New York, New York 10011
(research, publications, films, aids, and appliances)

American Printing House for the Blind
1839 Frankfort Avenue
Louisville, Kentucky 40206
(braille printer, educational aids and devices)

American Thermoform Corporation
8640 East Slausen Avenue
Pico Rivera, California 90660
(Thermoform duplicating machine and plastic sheets)

Arts and the Handicapped Information Service
Educational Facilities Laboratory
850 Third Avenue
New York, New York 10022
(publication entitled "Arts for the Blind and Visually Impaired")

Association for the Education of the Physically Handicapped
919 Walnut Street
Philadelphia, Pennsylvania 19001
(publications)

Braille Institute of America, Incorporated
741 North Vermont Avenue
Los Angeles, California 90029
(braille printer, aids, and appliances)

Clovernook Printing House for the Blind
Cincinnati, Ohio 45231
(braille printer)

Elinfa, Incorporated
Suite 1114
1725 K Street, N.W.
Washington, D.C. 20036
(braille electronic reading devices)

Howe Press
Perkins School for the Blind
Watertown, Massachusetts 02172
(Perkins Braille Writer, braille printer, aids, and appliances)

Library of Congress
Division for the Blind and Physically Handicapped
1291 Taylor Street, N.W.
Washington, D.C. 20542
(braille and recorded books and periodicals circulated nationwide)

National Braille Press, Incorporated
88 Saint Stephen Street
Boston, Massachusetts 02115
(braille printer)

National Federation of the Blind
218 Randolph Hotel Building
Des Moines, Iowa 50309
(largest organization of the blind in the United States)

Science for the Blind Productions
221 Rock Hill Road
Bala Cynwyd, Pennsylvania 19004
(aids and appliances)

Scott Plastics, Incorporated
P.O. Box 2958
Sarasota, Florida 33578
(braille and large print signs)

Telesensory Systems, Incorporated
P.O. Box 1009
3408 Hillview Avenue
Palo Alto, California 94304
(Optacon Reading Device, talking calculator, and sonic guide mobility aid)

Twin Vision Publishing Division
American Brotherhood for the Blind
Tarzana, California 91356
(Twin Vision books in braille and print combined)

Washington Scientific Industries, Inc. (WSI)
Long Lake, Minnesota 55356
(Microfilm readers which allow partially sighted students to read microfische in large print)

Guidelines for Museum Programs for Learning Disabled and Emotionally Disturbed Students

What Museums Should Know About Learning Disabled and Emotionally Disturbed Students

"Classification is serious business and can profoundly affect what happens to a child," says Nicholas Hobbs in his recent book, *The Futures of Children.*[1] Hobbs explains that while classifying and labeling handicapped children can "open doors to services and experiences, . . . an *inappropriate* classification can blight the life of a child, reducing opportunity, diminishing his competence and self esteem, and make him less of a person than he could become."[2]

Labels are dangerous. We cannot assume that every learning disabled (LD) student is like every other, that every diagnosis of a learning disability is an accurate one.

Bearing in mind the difficulties inherent in general classifications, we need to know what sorts of behavior earn some children the label of "learning disabled." Some learning disabled students hear words and directions but can't seem to remember what they've been told. Others try to write simple words and phrases on paper which come out muddled—the letter *p* appears instead of the letter *d*, the letters *b* and *d* are transposed, and sequences of words are often reversed. A learning disabled student might write or read "saw" for "was," or "form" for "from." This condition is often described as dyslexia. Some learning disabled students can multiply but can't subtract. Some bump into

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[1] Nicholas Hobbs, *The Futures of Children*, p. 1.

[2] Ibid.

Looking at and touching real objects in a discovery box is an experience to share.

things as they walk. To them, the door looks closer than it really is; the table further away.

"In practice," Hobbs states, "the term 'learning disabilities' is used to imply a handicapping condition associated with the inability of a child to perform school tasks at a level expected of him."[3] And while it is true that many learning disabled students have some type of neurological defect, an expressive or receptive language problem, or a difficulty writing letters, words, and sentences, it is important to remember that many students are labeled "learning disabled" because they do not fit into what is perceived as the normal range of acceptable school behavior.

"Emotional disturbance" is an umbrella term covering a wide range of unusual behaviors and, according to Hobbs, is as nebulous as "learning disabilities." There are emotionally disturbed (ED) children who can't seem to get along well with anyone, some who are unable to share, play, or even talk with other children and adults. Some cry when a situation is humorous and laugh when a situation is sad. Some are very depressed and morose much of the time, while others are excessively exuberant. Some are terrified of simple things like riding in a car, playing with another child, or sitting in a different chair at meal time. Some, who are more disturbed, live their lives in so detached and withdrawn a manner that even those closest to them cannot penetrate their world.

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[3] Ibid, p. 79.

Hobbs, as well as other specialists in the area of emotional disturbance, emphasizes that a clear diagnostic classification of disturbed children is extremely difficult. He notes that "the terminology is strongly influenced by factors unrelated to the characteristics of the child. A particular child, for example, may be regarded as mentally ill by a psychiatrist, as emotionally disturbed by a psychologist and as behavior disordered by a special educator."[4]

Official state and school system policies make a difference also. Hobbs points out that one state allows diagnosticians to use a full range of categories such as "childhood schizophrenia," while another state encourages the use of "adjustment problems of childhood" to describe the same behavior. Thus, when teachers look at the official records, students of one state appear to be "sicker" or "crazier" than students of a state just a few miles away.

Like the term "learning disabled," emotional disturbance may be used by some school personnel as a catch-all category to describe students whose behavior does not conform to adult expectations.

Clearly then, as museum staff invite and work with greater numbers of emotionally disturbed and learning disabled students, they must remember that the behaviors which characterize both terms are not precisely defined. A person who has conducted a demonstration with a group of learning disabled students, for example, may come away thinking, "They were as interested and as enthusiastic as any other group of children," and for the most part, that perception would be correct.

Many ED and LD students behave in ways much like their normal peers; they differ primarily in how they perceive themselves. Often, emotionally disturbed and learning disabled students suffer from the consequences of their label; many LD students have a deep feeling that they are "dumb" and can't learn the same way as other youngsters. They acquire a defeatist attitude, feeling that nothing ever works right so it is useless to make the effort. ED students may feel that others expect their class to act terrible because they are "crazy kids," and such students may reinforce negative feelings by not attempting to behave better.

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[4] Ibid.

Eminent psychologists, among them Carl Rogers, Abraham Maslow, and Arthur Combs, warn educators that a student's self-concept is a fragile entity and that a positive sense of self grows from success experiences provided by parents, teachers, and other significant adults in the student's life. These success experiences must be provided often so that the student can receive honest praise for a job well done.

One thing that characterizes both the ED and the LD student is a pervasive feeling of worthlessness. Therefore, when they do not appear to pay attention, follow instructions, or take the initiative to ask a question, it should not be assumed that they don't enjoy what is being seen or has been planned. They may be suffering from tension, or be afraid of saying something wrong or making mistakes and appearing foolish to those around them.

Training Museum Staff

When training museum staff about the needs of emotionally disturbed and learning disabled students, it is important to emphasize that all of us feel inadequate at one time or another. We can all recall telling little white lies to extricate ourselves from situations that might make us look foolish or incompetent. As adults, we often have the luxury of avoiding such situations—we can say that we are busy or not feeling well. However, students, especially emotionally disturbed and learning disabled students, do not have the same luxury. An LD student faced with a lengthy writing task with which he expects to have trouble doesn't have the option of saying he is too busy or that he will do it some other time. Unlike adults, children have few outlets for saving face—particularly in school or in school-related situations.

Training experiences for museum staff should emphasize that when ED or LD students appear disinterested or make inappropriate comments, it is often because they fear they will not measure up to adult expectations. Since these students often lack a stable sense of self worth, museum staff must learn how to provide confidence-building experiences for them.

In light of this need, training programs for museum staff might include some or all of the following activities:

1. *Inviting a Teacher.* A competent ED or LD teacher can help museum staff plan an effective training program. Local school systems can help locate a master teacher or supervising teacher in the area of the emotionally disturbed or the learning disabled. They can also provide names of teachers who operate resource rooms for ED and LD students in local public schools.

The teacher can then be invited to conduct a short workshop for museum staff on how to instill confidence and independence in these types of handicapped students. The resource person should be encouraged to share practical examples of successful lessons or mini-units during the workshop. Examples of students' work—especially in the areas of science, history, and the visual arts—could be included, and the teacher could prepare printed handout material describing how successful classroom activities can be translated into museum experiences.

It may take time to find the kind of person who will be an effective workshop leader for museum staff. Administrative status or a collection of degrees will not necessarily guarantee a stimulating and practical workshop leader. Whoever is selected should be encouraged to discuss the scope of the workshop with the museum program manager prior to the presentation.

2. *Observing in the Classroom.* Some time spent in a special class or a resource room will be useful to a museum educator trying to understand ED and LD students. It is also good preparation for a staff training program. A museum educator should try to attend such a class when the day's activities include a science, history, or visual arts project, and should request permission to work and talk with the students. If the teacher agrees, several other staff members might also attend the class. It is important that those who work with handicapped students in the museum not be apprehensive about doing so. A positive classroom experience can reinforce the feeling that such students are not so very different after all.

An excellent publication which will supplement the classroom experience is *An Issue of Access.* This book includes over 150 examples of how art programs and facilities have been made accessible to handicapped students. It is available from *Educational Facilities Laboratories, 850 Third Avenue, New York, N.Y. 10022,* and costs $4.00.

3. *Using Informed Parents.* Parents of handicapped students can offer abundant resources for museum staff training programs. *The National Association for Children with Learning Disabilities (NACLD)* has local chapters all over the country. These chapters frequently include informed and active parents who are eager to share their knowledge with members of the general public. Local chapters can be located by consulting the telephone directory or the national office of ACLD in Pittsburgh.

The Council for Exceptional Children (CEC) also has local chapters nationwide. CEC can be contacted by writing to the *Information Center, The Council for Exceptional Children, 1920 Association Drive, Reston, Virginia 22091*, or by calling their toll free number, 800-336-3728. Besides providing free information about its activities, CEC will help by contacting local chapter members who can suggest parent participants.

When an interested parent is located who will conduct a portion of a staff training session (or a group of persons who will participate on a panel), museum educators should provide specific guidelines. The parent or parents should be asked what particular museum exhibits or programs have especially interested their own handicapped students. A tour could be arranged for the parent and student to observe the student's interests.

4. *Building a Professional Library*

A small professional library which is available to museum staff will help them develop an understanding of ED and LD students. A local library can provide books and journals on an extended basis, or staff needs can be discussed with a special educator from a local college or university who might arrange for books to be borrowed.

Staff should be directed to use these materials. It might be helpful to include a book discussion in one of the training sessions.

The following books and journals are suggested as being particularly helpful for a museum staff.

Books

The Futures of Children (Categories, Labels and Their Consequences: A Report of the Project on Classification of Exceptional Children), Nicholas Hobbs, editor, Jossey-Bass Publishers, 615 Montgomery St., San Francisco, California 94111, 1975.

Mainstreaming Emotionally Disturbed Children, J. A. Pappanikou and James L. Paul, editors, Syracuse University Press, Syracuse, New York 13201, 1977.

Meeting the Needs of Learning Disabled Children in the Regular Class, Wineva Grzynkowicz, Charles C. Thomas, Bannerstone House, 301 East Lawrence Avenue, Springfield, Illinois, 1974.

Mainstreaming: A Practical Guide, James L. Paul, Ann Turnbull and William Cruickshank, Syracuse University Press, Syracuse, New York 13201, 1977.

The following books are oriented toward children and young adults. These books are appropriate for staff members interested in how handicapped students are presented to nonhandicapped peers.

About Handicaps: An Open Family Book for Parents and Children Together, Sara Bonnet Stein, Walker and Co., New York, New York, 1974.

He Is Your Brother, Richard Parker, Nelson Publishers, New York, New York, 1976 (a book for young adults about a child who has an emotionally disturbed, autistic brother).

Lisa, Bright and Dark, John Neufeld, S. G. Phillips, Publishers, New York, New York, 1969 (a book for young adults about a disturbed girl, as told by one of her friends who tries to help).

Sue Ellen, Edith Hunter, Houghton Mifflin Co., Publishers, Boston, Massachusetts, 1969 (a young girl has a learning disability and is placed in a special class).

TWYLA, Pamela Walker, Prentice Hall, Publishers, Englewood Cliffs, New Jersey, 1973 (the story of a learning disabled teenager is told through her misspelled letters to a friend).

Journals

Teaching Exceptional Children, the quarterly of the Council for Exceptional Children, 1920 Association Drive, Reston, Virginia 22090 (contains practical articles for working with all types of handicapped children).

Exceptional Parent, monthly, Stanley Klein, editor, Cambridge, Massachusetts (a journal by and for parents of all types of handicapped children).

AMICUS, journal of the National Center for Law and the Handicapped, 1235 North Eddy Street, South Bend, Indiana 46617

5. *Encouraging Mixed Groups*

Finally, it is important that museum staff are exposed to and aware of "mainstreaming" and the "least restrictive environment" concepts of federal laws. Staff should understand that extensive research indicates that all types of handicapped students learn better and behave better when they spend some part of their school time in the least restrictive environment of a regular classroom with their nonhandicapped peers.

Staff people also need to know that the concept of mainstreaming is vital to the education of many handicapped students and that museums should encourage mixed groups of handicapped and nonhandicapped students to visit their facilities. It is essential to include in training programs a spokesperson skilled in explaining why there are such laws and what they mean to handicapped students.

Program Planning and Special Provisions

1. *Learning Disabled Students*. Many learning disabled students have language difficulties that involve their sensory mechanisms. Yet it is more helpful for the educator to think of a learning disabled student as one who approaches a task or has a method of learning different from that usually encountered. This specific difference is referred to by professionals as *learning style*.

Educators are inclined to say that students exhibit different learning styles in either the auditory, visual, or tactile modes, which simply means that a student may favor the eyes, ears, or hands to give a learning experience meaning. Frequently such students combine these sensory elements into a learning method that is most effective for their needs.

There are learning disabled students who have difficulty interpreting directions when they are given verbally. Others have problems when only a visual format is used to present information, and still others cannot work well with tactile material. When museum educators start to plan programs for LD students, they must take into account these different learning styles.

Museum tours, programs, exhibits, and so on which are designed for learning disabled students should offer a variety of sensory satisfactions. It is of utmost importance, for example, that a guide present a clear descriptive explanation of an object and how it works, and then give ample time for handling it or a replica. Pictures, film strips, slides, and films are excellent tools and should be incorporated into a tour whenever possible. However, it is most important that tactile opportunities be offered. Patience is another requisite. A guide must have the sensitivity to permit pauses and an easy pace which allows time for asking questions and absorbing information. This will prevent confusion or a feeling of being overwhelmed by information. All of these special efforts will greatly enhance the museum experiences of learning disabled students.

In summary, museum programs for learning disabled students should take particular care to:

- limit the scope of topics,
- incorporate the use of all senses (visual, auditory, olfactory, tactile, kinesthetic) as they relate to the object,
- use tactile representations, and
- respond to any indicated interest, curiosity, or question.

2. *Emotionally Disturbed Students.* A multi-faceted sensory approach is necessary to ensure that emotionally disturbed students receive the special stimulus they require to enjoy and fully experience a museum visit. Visuals, when used, should be supplemented by tactile aids.

There are ED students who tend to be easily excitable; an uncomplicated visit for them will be the most successful. The approach should be easy, unhurried, stressless. ED youngsters are easily distracted, so a clearly structured (albeit simple) program should be planned. A balanced presentation is mandatory; everything should be brief but explicit.

A museum planning a program for emotionally disturbed youngsters should be aware that it is necessary to do the following:

- praise the students,
- set short time periods,
- organize the material and direction of the tour, and
- have a comprehension of handicaps and a sensitivity toward needs.

Resources for Museums

The following organizations will provide more information about handicapped students and special programs for them:

National Association for Children with Learning Disabilities (NACLD)
5225 Grace Street
Pittsburgh, Pennsylvania 15236
(lists local ACLD chapters and publishes national newsletter)

The Council for Exceptional Children (CEC)
1920 Association Drive
Reston, Virginia 22091
toll-free telephone 800-336-3728
(publishes teacher use materials for handicapped students, annotated bibliographies on ED and LD, and information on the new laws; there are local chapters in every state)

Educational Facilities Laboratory (EFL)
850 Third Avenue
New York, New York 10022
(has initiated a program on arts and the handicapped; publishes materials on museum experiences and art experiences for handicapped students)

Children's Defense Fund
1520 New Hampshire Avenue, N.W.
Washington, D.C. 20036
(has a wealth of publications, including pamphlets and books on federal laws as they relate to rights of handicapped students)

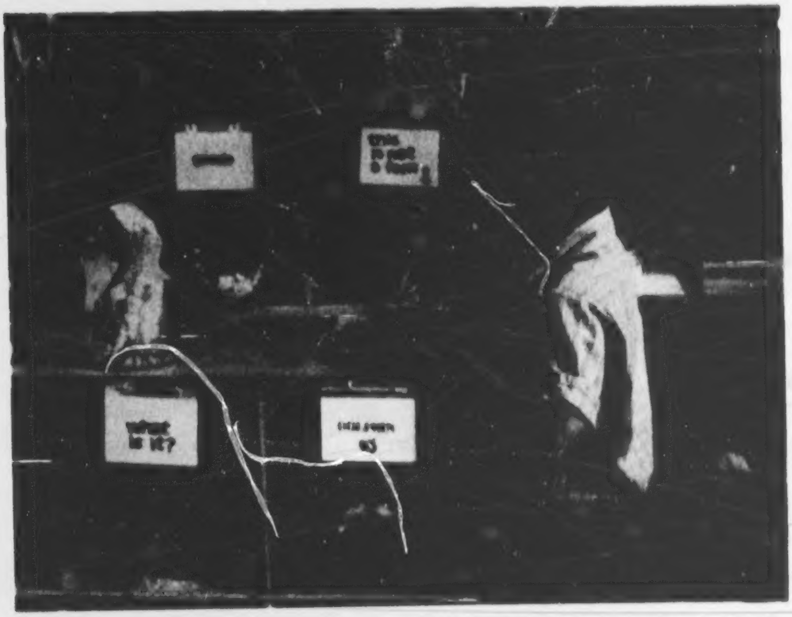
Merrimack Education Center
101 Mill Road
Chelmsford, Massachusetts 08124
(conducts workshops for teachers and interested public in many areas related to the handicapped; operates primarily in the New England area)

Open a New Window, Special Education Consulting Service
7708 Holmes Run Drive
Falls Church, Virginia 22042

(conducts teacher training and parent workshops on mainstreaming and the federal laws)

The Learning Institute
530 University Avenue
Palo Alto, California 94301
(a division of *Learning Magazine*, the Institute offers practical workshops on dealing with all types of handicapped students in regular classes; the Fall issue of *Learning Magazine* lists local workshops)

After a program for learning disabled or emotionally disturbed students has been initiated, it must also be publicized. It can be announced in local ACLD newsletters and PTA news sheets, and in special education departments in local colleges and universities. Although there are new federal laws which require public facilities to be accessible to the handicapped, no law can mandate attitude change on the part of the general public. The change can be made at the human (and humane) level by making special efforts to invite and welcome handicapped youngsters to museum programs.



The chance to look, touch, and study an object at one's own pace is fun for everyone, regardless of age or abilities.

Guidelines for Museum Programs for Mentally Retarded Students

The mentally retarded often cannot understand or relate to the wealth of information available in museums. This particular handicapped segment of society, perhaps more than all others, is neglected in the research about the needs of the handicapped in the museum environment.

Definition of Population

" 'Mentally retarded' means significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period, which adversely affects a child's educational performance."[1]

Statistics from the Bureau of Education for the Handicapped, 1970, indicated that there are 936,000 mentally retarded students in local public schools across the country. However, "even with the advances being made in the development and delivery of materials for the mentally retarded it is apparent that a great deal of progress needs to be made. . . . The inappropriateness of many 'regular' materials for the mentally retarded and the need for proper media application have been pointed out by researchers and curriculum specialists, among them Gunzburg (1966), Happ (1967) and Mauk (1971)."[2]

Scientific knowledge and professional literature are available, but intellectual recognition is only one facet of understanding exceptionality. "Understanding is one thing; being able to respond and relate to exceptional people requires experience and patience."[3] Duplica reports that the essential element for meeting the needs of the special child is "the ability to form a human relationship and to sustain it, even for a brief moment. . . . In serving exceptional children, particularly mentally retarded, one must be aware of one's own reaction, and the attitude one projects. It is important to know how one feels about people who are different; do children have a right to be different? Only an honest exploration of these feelings can uncover the attitude one projects."[4]

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[1] *Federal Register*, p. 56977.

[2] W. D. Lance, "Instructional Materials for Mentally Retarded," p. 161.

Attitudes and Misconceptions

One step toward providing a wider scope of positive experiences for retarded students visiting the museum is to dispel the myths concerning their interests, needs, and capabilities. "A common misconception about retardation is that if a person cannot speak intelligibly, he also cannot understand what is being said to him. Frequently, there is physiological damage interfering with proper speech, but the person can understand perfectly what others are saying."[5] This misconception can limit the ability of a volunteer or staff member to communicate with the retarded individual and this, in turn, will be an obstacle to maximum learning by the student.

The reaction of a student, whether retarded or normal, to a museum visit can depend upon how positively the tour guide relates to the young visitor. Ives observed that "attitudes change attitudes," and Beechel notes that "The belief that a mentally retarded person cannot learn has been one of the primary reasons the development of such people has been limited in the past. Recently, training techniques and philosophies have changed to take advantage of the long-unrecognized learning potential most of them have. As a result, many are being helped to develop their fullest potential."[6] It has been said that a tour guide's belief in a retarded individual's ability to express interest in and comprehend an interpretation of exhibit content is as important to the success of the program as the student's own motivation.

Another damaging misconception is that "a mentally retarded person does not feel emotions as intensely as do others with normal intellect. From all that can be determined by those working with people with mental retardation, there is no difference between them and people of normal intellect in this respect: they are just as sensitive."[7]

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[3] Moya M. Duplica, "The Librarian and the Exceptional Child," p. 202.

[4] Ibid., p. 201

[5] Jacques Beechel, "Interpretation for Handicapped Persons," p. 41

[6] Ibid.

Museums can offer an open, flexible environment in which mentally retarded children will be free to learn. Their interactions with the environment can be structured to provide maximum learning. It is the responsibility of the museum staff to recognize this and to learn how to achieve a successful structure. As with other handicapping conditions, the mentally retarded child can and will learn; however, the educator must, to a good degree, provide the means.

Students who are mentally retarded have the same educational needs in a museum as other students. Unfortunately, the emphasis in education for those who are retarded has been on vocationally oriented programs, to the exclusion of any arts, humanities, or scientific focus. Thus, special efforts need to be made not only to introduce the retarded student to the museum setting, but also to reinforce the museum education at the home and community center of the child who is retarded. Under no conditions does the mentally retarded person need therapy from a museum educator. This is not the museum's job, and it should not try to assume this responsibility.

Accessibility

Accessibility problems for the retarded are both attitudinal and architectural. The retarded need to be accepted into the museum (galleries, restroom, cafeteria) with dignity and graciousness. However, the severely and profoundly retarded may have some ambulatory problems or forget where they are going or why.

Also, some forms of retardation, such as Down's Syndrome for example, are frequently accompanied by various cardiac problems. For people with such conditions, elevators are preferable to stairs. Thus, the same building services, in terms of architectural accessibility, widely urged by other handicapped groups, will assist retarded visitors.

Classes of retarded students frequently are transported by bus. Therefore, clearly marked parking and loading areas near the entrance will be helpful. Some retarded children may be afraid of elevators or escalators, so guides should be prepared to give them directions to the stairs. In planning a museum visit, teachers should be encouraged to set aside adequate time for restroom stops, rest periods, and snacks or meals, in addition to time for seeing exhibits and examining museum objects. Comfortable shoes and clothing should be worn. These suggestions apply to all museum visitors, but are especially important for groups of retarded children. The less complicated the visit, the easier it will be for these children to benefit both emotionally and intellectually.

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[7] Ibid.

The Role of the Museum Guide

The guide should understand that these students learn best from touching experiences. With this comprehension, the guide will be able to appreciate the student's capabilities and structure the tour accordingly. Mentally retarded people most often can and do want to learn when offered the stimulation of tangible and relevant materials. These students may think of the museum visit as an adventure of exploration—which it should be.

The museum guide should consider visiting the school to observe the techniques of the classroom teacher and to become acquainted with the children. The guide, teacher, and students could meet prior to the museum visit to examine materials from the museum related to the displays they will see and to help generate enthusiasm for the anticipated visit.

It is strongly recommended that persons working in the museum with mentally retarded children be given special training. Personnel from centers for the education of the mentally retarded would no doubt be willing to assist. They could brief museum staff and volunteers concerning length of attention span, language capabilities and level, use of the senses, possible problem areas, and special needs. Then, teachers of the particular group planning to visit the museum should be consulted on the needs of individual children.

Guides should be prepared to accept the fact that some of the students will not be pretty to look at, and they should train themselves to respond to such children comfortably.

In recent years, many special educators have experienced success using sign language with nonverbal retarded people. While this is not a mandatory requirement for working with people who are retarded, it is clear that, in the future, the educator with some skills in signing will have an advantage.

It is appropriate to offer the retarded school-age visitor the same materials and handouts that the museum offers to the student who is not retarded. Some can read, and others have family members or friends who can read to them. Information regarding concerts, lectures, museum affairs, and exhibitions can help the retarded person remember a museum visit

Every museum should consider which of its exhibits would be most interesting and suitable for youngsters of limited mental ability. In most instances, exhibits recommended for average students will be most appropriate. Such objects are familiar; students can relate to them through stories. These familiar objects include large mammals, Indians, dinosaurs, airplanes, trains and automobiles, toys, or common household furnishings existing in a previous era. Both the length of the visit and the number of exhibits or objects to be viewed should be cut down for mentally retarded children. When objects are touchable, every child should have an opportunity to handle them. Each child should be permitted to explore an object in his or her own manner. It is important to be certain that the object is both durable and safe for handling. Very young and mentally retarded children will frequently smell, taste, shake, and drop objects in the process of examination. It is wise, then, to seat groups on a carpeted area, where both the safety of the viewer and the object are ensured.

Older students who have mental retardation may have a somewhat broader range of interests. Consultation with the teachers of these students may help the museum staff determine the museum exhibits best suited to their particular needs. Touchable materials with interesting textures, shapes, and weights similar to more valuable ones kept behind glass will enhance the experience of these persons.

The retarded most probably can derive some benefit from most exhibits. It will be helpful if the retarded students can visit the museum more than once to reinforce the learning experience. The same chaperones should accompany the group on these visits to the museum. These persons can then reinforce the learning that has taken place in the museum with other activities in the classroom or at home.

Many citizens have been labeled mentally retarded because of basic cultural deprivation. The museum can play a strongly supportive role in providing experiences for these persons that will remove the gap between them and other individuals. The museum has the capability of opening to mentally retarded people new worlds and wider vistas.

Traveling Displays

Mentally retarded children could profit greatly from a small traveling museum display which could visit their school or institution. Mentally retarded persons who can learn may be educated by materials brought to them from the museum. Such materials might include costumes worn by people in past eras. The opportunity to actually put on such an outfit would give the students a feeling of personal participation as well as the sensation of experiencing intimately a part of past history. When visits such as this are repeated, it gives youngsters the opportunity to develop a memory of them.

Publicizing Programs

Since many mentally retarded persons have not learned or cannot learn to read, local radio and television announcements which inform the entire viewing population of museum exhibits can publicize the fact that all persons are welcome and that guides are available. Such announcements should stress that museum guides are there to explain the exhibits and assist on tours, as well as to provide information about the total museum and its facilities.

Resources

Often a community will have an organized group of parents or other advocates for the population known as "retarded persons." These organizations can be located through local telephone directories. Other helpful organizations include:

The Council for Exceptional Children (CEC)
1920 Association Drive
Reston, Virginia 22091
Toll-free telephone: 800-336-3728
(an international organization of parents, teachers, and administrators of special education which publishes information about the mentally retarded, including a quarterly publication, *Teaching Exceptional Children*, and a newsletter)

Educational Facilities Laboratory (EFL)
850 Third Avenue
New York, New York 10022
(has initiated a program on the arts and the handicapped; publishes material on experiences for the handicapped child)

The President's Committee on Mental Retardation
Department of Health, Education and Welfare
Washington, D.C. 20201

Open a New Window
Special Education Consulting Service
7708 Holmes Run Drive
Falls Church, Virginia 22042
(conducts teacher training and parent workshops on mainstreaming and the federal laws)

IV: Conclusions

Summary and Recommendations

During the past ten years, federal legislation has been passed to insure the integration of 51.1 million handicapped persons into the majority mainstream. For museums, this means that many more handicapped students and adults will be participating in museum programs and exhibits. In anticipation of this increased visitation, museum staff must begin to organize educational programs and exhibits to serve the needs of all visitors. It is important that museum personnel become aware that handicapped persons are insisting upon the right to live their lives in an independent manner. They do not wish to be segregated into separate programs; such segregation in the past only increased and reinforced the stigma of being "different and unequal." In essence, the handicapped seek equality, not paternalism.

Unfortunately, literature related to programs for handicapped persons is very limited. What is available indicates that current museum practices show little knowledge about using museum resources to enrich the education of handicapped children. The literature stresses the need to survey existing museum programs to determine what programs and facilities have been developed to respond to the particular needs of handicapped visitors. Such findings would be beneficial to those institutions desiring to establish programs for people with handicaps.

For this purpose, the Smithsonian Institution, through a grant from the Bureau of Education for the Handicapped, Department of Health, Education and Welfare (HEW), undertook a study of the current status of museum education for handicapped students. A survey was conducted in an effort to gather information concerning the availability of museum programs for such students, and surveys were carried out to determine the degree of participation by people who are handicapped. The museum survey was sent to museums located in the fifty largest cities in the country, as well as to randomly selected smaller cities. Other surveys were directed to ten percent of special education teachers located in the country's twenty-five major cities. In addition, specially designed surveys were sent to a sampling of those who are deaf, physically handicapped, and blind. The findings from these surveys have provided insight into the current programs and practices of museums, and their use by handicapped visitors.

Surveys

Consumer Surveys

Fifteen hundred surveys were mailed to each of three groups of handicapped people to acquire statistics about museum visitation by physically handicapped, blind, and deaf persons. However, the number of completed and returned surveys was too small to provide significant data—a fact which should itself be questioned. The responses which were received provide valuable information about museum programs for handicapped persons. This information is summarized below.

Deaf

1. Deaf persons prefer to visit museums with family or other deaf visitors.
2. Museums should have special staff to work with deaf visitors.
3. Accommodations considered most important to deaf visitors were:
    - guides well versed in sign language
    - exhibit labels
    - captions

Of least importance to deaf visitors were teletypewriter telephones.

4. The majority of deaf respondents are willing to pay the same admission fees which are charged to the general public.
5. The principal mode suggested for disseminating information about museum programs for deaf persons was through organizations of the deaf.
6. The majority of respondents were interested in museum extension programs.
7. The majority of respondents indicated they had not attended a museum since becoming deaf because there were no programs for the deaf.

Physically Handicapped

1. Physically handicapped persons prefer to visit museums with family or friends.

2. Museums should train their regular staff to work with the physically handicapped visitor.

3. Physical accommodations considered most important to the physically handicapped were:

- ramps
- accessible door frames
- elevators
- accessible restrooms
- curb cuts.

4. The majority of physically handicapped respondents are willing to pay the same admission fees which are charged to the general public.

5. Radio and television are considered the best modes for dissemination of information about programs to the physically handicapped public. Organizations of the physically handicapped were also mentioned as a useful means for dissemination.

6. The majority of respondents were interested in museum extension programs.

7. Inaccessibility of museums is the major reason given by physically handicapped persons for not visiting. Other considerations mentioned were lack of transportation, need of an aide, and expense. Ninety-two percent of the physically handicapped respondents who had not visited a museum indicated they would if museums were made accessible.

Blind

1. Blind persons prefer to visit museums with family or friends.

2. Museums should train their current staff to work with blind visitors.

3. The accommodation felt to be most important for blind visitors was museum literature available in braille, on tape, or in large print. Of least importance were raised line drawings of museum facilities or exhibits and braille labels on exhibits.

4. The majority of blind respondents are willing to pay the same admission fees which are charged to the general public.

5. Radio and television were the favored methods of making blind persons aware of special museum programs. Also mentioned as valuable in disseminating information were organizations of the blind and libraries for the blind and physically handicapped population.

6. Most respondents indicated an interest in museum education extension programs.

7. Most respondents expressed little interest in museums. Nearly half stated that they never got around to visiting a museum.

Museum Survey

Six hundred thirty-seven museums responded to the museum survey, a return of 44 percent. The following are highlights of some of the significant findings.

1. Zoos, children's museums, and planetariums tended to have organized programs for handicapped visitors more often than other kinds of museums.

2. The size of the city in which a museum was located did not significantly influence whether or not an organized program was available.

3. Tape recorders and wheelchairs were the most often cited equipment for handicapped people available in museums.

4. Museums having 1,000 or more handicapped visitors per year have greater access to all types of equipment for the handicapped.

5. The five most available facilities for the handicapped patron were:

- door frames wide enough for wheelchairs
- ramps
- floor coverings permitting ease in handling wheelchairs
- water fountains at a height suitable for those in wheelchairs
- elevators.

6. Of services for blind patrons, touchable objects from museum collections were the most common material provided. Slightly over half of the respondent museums have no programs available to the blind visitor.

7. Twenty percent of responding museums said they provided no services for deaf patrons. When services were provided, the most common was self-guiding brochures and the use of volunteers.

8. In relation to publicity, one trend is apparent: The number of handicapped visitors to museums increases as the dissemination of information increases. Yet 73 percent of respondents reported making no effort to inform potential visitors of programs available to handicapped persons. When an effort was made, it was generally through:

- local schools
- agencies for the handicapped
- local media.

9. Most museums do not have sufficient funds for museum education programs for the handicapped.

10. Museums in the ten largest cities averaged 4,878 handicapped visitors per year, while museums in the smallest cities (smaller than the fifty largest) averaged 318 persons. It should be noted, however, that

several of the larger museums reported over 10,000 handicapped visitors a year, which distorts the average number of handicapped visitors.

11. On the average, a greater number of handicapped persons annually visit zoos, museums of science and technology, and planetariums, in that order.

12. Twenty-eight percent of the responding museums have 0–50 handicapped visitors per year, while 12 percent have 1,000 or more.

13. The majority of museums do not have staff responsible for programs for handicapped persons.

14. Training of museum personnel for each specific handicapped group appears to be more available in the largest fifty cities than in those which are smaller.

15. The great majority of respondents (66 percent) provide no training to staff or volunteers on how to work with handicapped visitors. It also appears that most training is acquired through practical experience.

16. Few museums offer extension programs for handicapped persons.

17. In the museums responding, 40 percent of the exhibits are behind glass, 13 percent are suspended or hanging, 17 percent are touchable, and 6 percent are audio-visual presentations. Twenty-four percent of exhibits have other characteristics.

18. Approximately two-thirds of the respondent museums provided tours for handicapped tourists.

19. Approximately half of the museums included handicapped students in regular tours. Museums with over 1,000 handicapped visitors each year tended to separate visitors by specific handicap.

Survey of Special Education Teachers

Surveys were mailed to 1,793 special education teachers. Eight hundred sixty-three completed surveys were returned, a 49 percent response. Findings include:

1. Sixty percent of the special education teachers who responded have visited a museum in the past two years.

2. Special education teachers who teach in self-contained classrooms were most likely to take their students for a museum visit.

3. Sixty percent of survey respondents with two or more years of teaching experience have taken their classes to visit a museum.

4. Of the special educators who said they had taken their students to a museum in the past two years, only 4 percent worked with the blind, 6 percent with the speech impaired, 7 percent with the hearing impaired, and 10 percent with the physically handicapped. Twenty-seven

percent served mentally retarded students, 25 percent the learning disabled, and 21 percent the emotionally disturbed.

5. Special education teachers indicated that the most available museum facilities were elevators and doors wide enough for wheelchair access.

6. Seventy-eight percent of those teachers who had visited a museum in the past two years notified the museum prior to the visit.

7. Generally, the majority of all teachers who did notify the museum prior to their class visit received a tour.

8. Approximately half of the respondents were asked by the museum about their students' needs prior to a visit.

9. When consulted about the needs of their students, the teachers were most often asked about academic level, interests, length of tour desired, physical limitations, language level, and the best method of presentation.

10. Special education teachers were most critical of the language level of tour guides and the lack of knowledge of characteristics of specific handicaps.

11. Pre-visit activities were the most frequently offered means of providing introductory material to a museum.

12. Nearly all special education teachers accompany their students on museum tours.

13. The majority of special educators who visited a museum with their students did not receive any follow-up materials from the museum.

14. Of all materials available for purchase in museum shops, those which could be used by deaf or blind persons were the least often provided.

15. Most special education teachers felt that the role of a museum visit was to provide a supplement or enrichment activity to their planned curriculum. Ranked least important was "to provide a site for a field trip with no specific purpose."

16. On visits to a museum, students most often viewed exhibits behind glass.

17. Services for deaf and blind visitors were least available of all services provided in museums.

18. Special educators perceived the purpose of a museum visit most often to be a challenging, motivating experience, allowing for personal exploration by their students.

19. Zoos and natural history museums tend to be the most often visited.

20. Art museums and planetariums were the most frequent recipients of return visits by respondents.

Survey results show that handicapped persons do visit museums, and, although numbers vary, it is apparent that participation is greater in museums which advertise the availability of programs. As programs for the handicapped visitor increase, so will participation by students with handicaps.

The survey ascertained that museums do provide services for handicapped visitors, and special education teachers do take their students to museums for tours. On the other hand, it is also evident that, in the opinion of special education teachers, museum staff or volunteers do not always understand the needs of those possessing specific handicaps.

Guidelines

The following guidelines have been prepared as an initial step to help museums establish programs for handicapped students. Although specific handicaps present different problems, these guidelines offer some general approaches to meeting the needs of all handicapped museum visitors.

1. Handicapped people wish to be integrated into existing educational programs. They want to enjoy exhibits erected for the general public, rather than exhibits or programs that are established just for them.
2. Handicapped people possess different "learning styles" (through the use of their eyes, ears, or hands) depending upon their specific handicap. Therefore, any program or exhibit a museum plans must incorporate all kinds of sensory possibilities to give the experience meaning to persons with different kinds of handicaps.
3. Handicapped students and their teachers feel that museums are excellent facilities for providing stimulating learning experiences.
4. Museum educators should contact organizations of handicapped people and special education teachers for support and assistance in training museum staff or volunteers to work with the handicapped.
5. Museum educators should contact organizations of handicapped people and special education teachers to determine the needs of specific handicaps in preparing museum tours.
6. Museum educators should observe special education classes to gain insights into the needs of handicapped youngsters.
7. The use of alternate programs is acceptable when inaccessibility precludes full participation in existing programs or entrance into existing structures by handicapped students.
8. The use of signs, such as distinctly male/female figures denoting restrooms, can serve as interpretive aids for everyone.

9. Handicapped individuals should be considered in the planning of exhibit designs.

10. Programs which have been designed to include handicapped persons should be advertised through the media and through specific organizations of handicapped people to reach potential audiences.

Recommendations

Based on the survey findings, discussions with museum educators, representatives of various organizations of handicapped persons, and consultants employed under the grant, some recommendations can be offered for a nationwide effort to make museums more accessible and responsive to the needs of handicapped students. To implement these recommendations museums must provide proper funding and staff trained in museum education and the education of the handicapped child. These efforts will also demand the close cooperation of handicapped persons of all descriptions, who can provide valuable assistance in creating and evaluating effective programs, methods, and exhibits.

1. A set of films/film strips or video tapes should be produced to demonstrate techniques of working with student groups with varying handicaps in a museum setting. These audio-visual materials would be excellent teaching tools and could be made available to museums regardless of their geographic location.

2. Regional workshops on programs for handicapped persons should be conducted in areas where there are a number of museums located. Workshops should rely in large part upon handicapped individuals or their representatives for relevant input and as speakers.

3. A newsletter should be developed to focus on topics related to museum programs for the handicapped. The newsletter could be distributed by the American Association of Museums. Follow-up studies might then be conducted to see what percentage of museums actually implement programs.

4. A series of studies should be conducted to evaluate alternative teaching techniques for handicapped students in various kinds of museums. The findings from such studies could serve as models for program development in all museums.

Conclusions

This study, funded by the Bureau for the Education of the Handicapped, Department of Health, Education and Welfare, has revealed some interesting facts about the use of museums by handicapped students. It highlights the usefulness of museums as an educational resource, the opinions of special education teachers, and the current development of museum exhibits and education programs for handicapped students. Although a significant number of handicapped persons visit museums each year, the study shows that only a minimum effort has been made to adapt museum facilities and programs to their needs. There are, of course, some instances where new buildings, exhibits, and programs have been modified or initially planned to respond to the needs of handicapped students. Most museums, however, could benefit from additional facilities, equipment, more training for staff and volunteer personnel, and a wider variety of sensory exhibit materials. Museums must also realize that handicapped audiences can only become aware of museum programs through better publicity and promotion.

The committee of museum educators which carried out this study hopes that the presentation of facts on current museum usage by handicapped students and the suggested guidelines for improving services and facilities will serve as a catalyst for the development of new programs and techniques. Although the survey was conducted in the interests of handicapped students, the implementation of museum programs for them will undoubtedly be a great resource for all handicapped persons.

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